



# SEQUENCE LISTING

<110> Yaffe, Michael B.  
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Manke, Isaac

<120> Computer Comprising Atomic Coordinates of a PLK-1 Polo-Box Domain  
and Uses Thereof

<130> 01997/545003

<140> US 10/713,978  
<141> 2003-11-14

<150> US 60/487,899  
<151> 2003-07-17

<150> US 60/485,641  
<151> 2003-07-08

<150> US 60/426,132  
<151> 2002-11-14

<160> 126

<170> PatentIn version 3.3

<210> 1  
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<212> PRT  
<213> Homo sapien

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Met Ser Ala Ala Val Thr Ala Gly Lys Leu Ala Arg Ala Pro Ala Asp  
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Pro Gly Lys Ala Gly Val Pro Gly Val Ala Ala Pro Gly Ala Pro Ala  
20 25 30

Ala Ala Pro Pro Ala Lys Glu Ile Pro Glu Val Leu Val Asp Pro Arg  
35 40 45

Ser Arg Arg Arg Tyr Val Arg Gly Arg Phe Leu Gly Lys Gly Gly Phe  
50 55 60

Ala Lys Cys Phe Glu Ile Ser Asp Ala Asp Thr Lys Glu Val Phe Ala  
65 70 75 80

Gly Lys Ile Val Pro Lys Ser Leu Leu Leu Lys Pro His Gln Arg Glu  
85 90 95

Lys Met Ser Met Glu Ile Ser Ile His Arg Ser Leu Ala His Gln His  
100 105 110

Val Val Gly Phe His Gly Phe Phe Glu Asp Asn Asp Phe Val Phe Val  
115 120 125

Val Leu Glu Leu Cys Arg Arg Arg Ser Leu Leu Glu Leu His Lys Arg  
130 135 140

Arg Lys Ala Leu Thr Glu Pro Glu Ala Arg Tyr Tyr Leu Arg Gln Ile  
145 150 155 160

Val Leu Gly Cys Gln Tyr Leu His Arg Asn Arg Val Ile His Arg Asp  
165 170 175

Leu Lys Leu Gly Asn Leu Phe Leu Asn Glu Asp Leu Glu Val Lys Ile  
180 185 190

Gly Asp Phe Gly Leu Ala Thr Lys Val Glu Tyr Asp Gly Glu Arg Lys  
195 200 205

Lys Thr Leu Cys Gly Thr Pro Asn Tyr Ile Ala Pro Glu Val Leu Ser  
210 215 220

Lys Lys Gly His Ser Phe Glu Val Asp Val Trp Ser Ile Gly Cys Ile  
225 230 235 240

Met Tyr Thr Leu Leu Val Gly Lys Pro Pro Phe Glu Thr Ser Cys Leu  
245 250 255

Lys Glu Thr Tyr Leu Arg Ile Lys Lys Asn Glu Tyr Ser Ile Pro Lys  
260 265 270

His Ile Asn Pro Val Ala Ala Ser Leu Ile Gln Lys Met Leu Gln Thr  
275 280 285

Asp Pro Thr Ala Arg Pro Thr Ile Asn Glu Leu Leu Asn Asp Glu Phe  
290 295 300

Phe Thr Ser Gly Tyr Ile Pro Ala Arg Leu Pro Ile Thr Cys Leu Thr

305		310		315		320
Ile Pro Pro Arg Phe Ser Ile Ala Pro Ser Ser Leu Asp Pro Ser Asn						
		325		330		335
Arg Lys Pro Leu Thr Val Leu Asn Lys Gly Leu Glu Asn Pro Leu Pro						
		340		345		350
Glu Arg Pro Arg Glu Lys Glu Glu Pro Val Val Arg Glu Thr Gly Glu						
		355		360		365
Val Val Asp Cys His Leu Ser Asp Met Leu Gln Gln Leu His Ser Val						
		370		375		380
Asn Ala Ser Lys Pro Ser Glu Arg Gly Leu Val Arg Gln Glu Glu Ala						
		385		390		400
Glu Asp Pro Ala Cys Ile Pro Ile Phe Trp Val Ser Lys Trp Val Asp						
		405		410		415
Tyr Ser Asp Lys Tyr Gly Leu Gly Tyr Gln Leu Cys Asp Asn Ser Val						
		420		425		430
Gly Val Leu Phe Asn Asp Ser Thr Arg Leu Ile Leu Tyr Asn Asp Gly						
		435		440		445
Asp Ser Leu Gln Tyr Ile Glu Arg Asp Gly Thr Glu Ser Tyr Leu Thr						
		450		455		460
Val Ser Ser His Pro Asn Ser Leu Met Lys Lys Ile Thr Leu Leu Lys						
		465		470		475
Tyr Phe Arg Asn Tyr Met Ser Glu His Leu Leu Lys Ala Gly Ala Asn						
		485		490		495
Ile Thr Pro Arg Glu Gly Asp Glu Leu Ala Arg Leu Pro Tyr Leu Arg						
		500		505		510
Thr Trp Phe Arg Thr Arg Ser Ala Ile Ile Leu His Leu Ser Asn Gly						
		515		520		525
Ser Val Gln Ile Asn Phe Phe Gln Asp His Thr Lys Leu Ile Leu Cys						
		530		535		540

Pro Leu Met Ala Ala Val Thr Tyr Ile Asp Glu Lys Arg Asp Phe Arg  
 545 550 555 560

Thr Tyr Arg Leu Ser Leu Leu Glu Glu Tyr Gly Cys Cys Lys Glu Leu  
 565 570 575

Ala Ser Arg Leu Arg Tyr Ala Arg Thr Met Val Asp Lys Leu Leu Ser  
 580 585 590

Ser Arg Ser Ala Ser Asn Arg Leu Lys Ala Ser  
 595 600

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 <213> Artificial Sequence

<220>  
 <223> Synthetic

<220>  
 <221> MISC\_FEATURE  
 <222> (1)..(2)  
 <223> Xaa = Pro or Phe

<220>  
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 <222> (3)..(3)  
 <223> Xaa = Phe, Ala or Gln

<220>  
 <221> MISC\_FEATURE  
 <222> (4)..(4)  
 <223> Xaa = Thr, Gln, His or Met

<220>  
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 <222> (6)..(6)  
 <223> Xaa = phosphorylated Thr or phosphorylated Ser

<220>  
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 <222> (7)..(7)  
 <223> Xaa = Pro or any amino acid

<400> 2

Xaa Xaa Xaa Xaa Ser Xaa Xaa  
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<210> 3  
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 <212> PRT  
 <213> Artificial Sequence

<220>  
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<220>  
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 <223> PHOSPHORYLATION

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Met Ala Gly Pro Met Gln Ser Thr Pro Leu Asn Gly Ala Lys Lys  
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<210> 4  
 <211> 603  
 <212> PRT  
 <213> Homo sapiens

<400> 4

Met Ser Ala Ala Val Thr Ala Gly Lys Leu Ala Arg Ala Pro Ala Asp  
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Pro Gly Lys Ala Gly Val Pro Gly Val Ala Ala Pro Gly Ala Pro Ala  
 20 25 30

Ala Ala Pro Pro Ala Lys Glu Ile Pro Glu Val Leu Val Asp Pro Arg  
 35 40 45

Ser Arg Arg Arg Tyr Val Arg Gly Arg Phe Leu Gly Lys Gly Gly Phe  
 50 55 60

Ala Lys Cys Phe Glu Ile Ser Asp Ala Asp Thr Lys Glu Val Phe Ala  
 65 70 75 80

Gly Lys Ile Val Pro Lys Ser Leu Leu Leu Lys Pro His Gln Arg Glu  
 85 90 95

Lys Met Ser Met Glu Ile Ser Ile His Arg Ser Leu Ala His Gln His  
 100 105 110

Val Val Gly Phe His Gly Phe Phe Glu Asp Asn Asp Phe Val Phe Val

115	120	125
Val Leu Glu Leu Cys Arg Arg Arg Ser Leu Leu Glu Leu His Lys Arg		
130	135	140
Arg Lys Ala Leu Thr Glu Pro Glu Ala Arg Tyr Tyr Leu Arg Gln Ile		
145	150	155 160
Val Leu Gly Cys Gln Tyr Leu His Arg Asn Arg Val Ile His Arg Asp		
165	170	175
Leu Lys Leu Gly Asn Leu Phe Leu Asn Glu Asp Leu Glu Val Lys Ile		
180	185	190
Gly Asp Phe Gly Leu Ala Thr Lys Val Glu Tyr Asp Gly Glu Arg Lys		
195	200	205
Lys Thr Leu Cys Gly Thr Pro Asn Tyr Ile Ala Pro Glu Val Leu Ser		
210	215	220
Lys Lys Gly His Ser Phe Glu Val Asp Val Trp Ser Ile Gly Cys Ile		
225	230	235 240
Met Tyr Thr Leu Leu Val Gly Lys Pro Pro Phe Glu Thr Ser Cys Leu		
245	250	255
Lys Glu Thr Tyr Leu Arg Ile Lys Lys Asn Glu Tyr Ser Ile Pro Lys		
260	265	270
His Ile Asn Pro Val Ala Ala Ser Leu Ile Gln Lys Met Leu Gln Thr		
275	280	285
Asp Pro Thr Ala Arg Pro Thr Ile Asn Glu Leu Leu Asn Asp Glu Phe		
290	295	300
Phe Thr Ser Gly Tyr Ile Pro Ala Arg Leu Pro Ile Thr Cys Leu Thr		
305	310	315 320
Ile Pro Pro Arg Phe Ser Ile Ala Pro Ser Ser Leu Asp Pro Ser Asn		
325	330	335
Arg Lys Pro Leu Thr Val Leu Asn Lys Gly Leu Glu Asn Pro Leu Pro		
340	345	350

Glu Arg Pro Arg Glu Lys Glu Glu Pro Val Val Arg Glu Thr Gly Glu  
 355 360 365

Val Val Asp Cys His Leu Ser Asp Met Leu Gln Gln Leu His Ser Val  
 370 375 380

Asn Ala Ser Lys Pro Ser Glu Arg Gly Leu Val Arg Gln Glu Glu Ala  
 385 390 395 400

Glu Asp Pro Ala Cys Ile Pro Ile Phe Trp Val Ser Lys Trp Val Asp  
 405 410 415

Tyr Ser Asp Lys Tyr Gly Leu Gly Tyr Gln Leu Cys Asp Asn Ser Val  
 420 425 430

Gly Val Leu Phe Asn Asp Ser Thr Arg Leu Ile Leu Tyr Asn Asp Gly  
 435 440 445

Asp Ser Leu Gln Tyr Ile Glu Arg Asp Gly Thr Glu Ser Tyr Leu Thr  
 450 455 460

Val Ser Ser His Pro Asn Ser Leu Met Lys Lys Ile Thr Leu Leu Lys  
 465 470 475 480

Tyr Phe Arg Asn Tyr Met Ser Glu His Leu Leu Lys Ala Gly Ala Asn  
 485 490 495

Ile Thr Pro Arg Glu Gly Asp Glu Leu Ala Arg Leu Pro Tyr Leu Arg  
 500 505 510

Thr Trp Phe Arg Thr Arg Ser Ala Ile Ile Leu His Leu Ser Asn Gly  
 515 520 525

Ser Val Gln Ile Asn Phe Phe Gln Asp His Thr Lys Leu Ile Leu Cys  
 530 535 540

Pro Leu Met Ala Ala Val Thr Tyr Ile Asp Glu Lys Arg Asp Phe Arg  
 545 550 555 560

Thr Tyr Arg Leu Ser Leu Leu Glu Glu Tyr Gly Cys Cys Lys Glu Leu  
 565 570 575

Ala Ser Arg Leu Arg Tyr Ala Arg Thr Met Val Asp Lys Leu Leu Ser  
580 585 590

Ser Arg Ser Ala Ser Asn Arg Leu Lys Ala Ser  
595 600

<210> 5  
<211> 646  
<212> PRT  
<213> Homo sapiens

<400> 5

Met Glu Pro Ala Ala Gly Phe Leu Ser Pro Arg Pro Phe Gln Arg Ala  
1 5 10 15

Ala Ala Ala Pro Ala Pro Pro Ala Gly Pro Gly Pro Pro Pro Ser Ala  
20 25 30

Leu Arg Gly Pro Glu Leu Glu Met Leu Ala Gly Leu Pro Thr Ser Asp  
35 40 45

Pro Gly Arg Leu Ile Thr Asp Pro Arg Ser Gly Arg Thr Tyr Leu Lys  
50 55 60

Gly Arg Leu Leu Gly Lys Gly Gly Phe Ala Arg Cys Tyr Glu Ala Thr  
65 70 75 80

Asp Thr Glu Thr Gly Ser Ala Tyr Ala Val Lys Val Ile Pro Gln Ser  
85 90 95

Arg Val Ala Lys Pro His Gln Arg Glu Lys Ile Leu Asn Glu Ile Glu  
100 105 110

Leu His Arg Asp Leu Gln His Arg His Ile Val Arg Phe Ser His His  
115 120 125

Phe Glu Asp Ala Asp Asn Ile Tyr Ile Phe Leu Glu Leu Cys Ser Arg  
130 135 140

Lys Ser Leu Ala His Ile Trp Lys Ala Arg His Thr Leu Leu Glu Pro  
145 150 155 160

Glu Val Arg Tyr Tyr Leu Arg Gln Ile Leu Ser Gly Leu Lys Tyr Leu

165																170				175			
His	Gln	Arg	Gly	Ile	Leu	His	Arg	Asp	Leu	Lys	Leu	Gly	Asn	Phe	Phe								
			180					185					190										
Ile	Thr	Glu	Asn	Met	Glu	Leu	Lys	Val	Gly	Asp	Phe	Gly	Leu	Ala	Ala								
		195					200					205											
Arg	Leu	Glu	Pro	Pro	Glu	Gln	Arg	Lys	Lys	Thr	Ile	Cys	Gly	Thr	Pro								
	210					215					220												
Asn	Tyr	Val	Ala	Pro	Glu	Val	Leu	Leu	Arg	Gln	Gly	His	Gly	Pro	Glu								
225					230					235					240								
Ala	Asp	Val	Trp	Ser	Leu	Gly	Cys	Val	Met	Tyr	Thr	Leu	Leu	Cys	Gly								
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Ser	Pro	Pro	Phe	Glu	Thr	Ala	Asp	Leu	Lys	Glu	Thr	Tyr	Arg	Cys	Ile								
			260					265					270										
Lys	Gln	Val	His	Tyr	Thr	Leu	Pro	Ala	Ser	Leu	Ser	Leu	Pro	Ala	Arg								
		275					280					285											
Gln	Leu	Leu	Ala	Ala	Ile	Leu	Arg	Ala	Ser	Pro	Arg	Asp	Arg	Pro	Ser								
	290					295					300												
Ile	Asp	Gln	Ile	Leu	Arg	His	Asp	Phe	Phe	Thr	Lys	Gly	Tyr	Thr	Pro								
305					310					315					320								
Asp	Arg	Leu	Pro	Ile	Ser	Ser	Cys	Val	Thr	Val	Pro	Asp	Leu	Thr	Pro								
				325					330					335									
Pro	Asn	Pro	Ala	Arg	Ser	Leu	Phe	Ala	Lys	Val	Thr	Lys	Ser	Leu	Phe								
			340					345					350										
Gly	Arg	Lys	Lys	Lys	Ser	Lys	Asn	His	Ala	Gln	Glu	Arg	Asp	Glu	Val								
		355					360					365											
Ser	Gly	Leu	Val	Ser	Gly	Leu	Met	Arg	Thr	Ser	Val	Gly	His	Gln	Asp								
	370					375					380												
Ala	Arg	Pro	Glu	Ala	Pro	Ala	Ala	Ser	Gly	Pro	Ala	Pro	Val	Ser	Leu								
385					390					395					400								

Val Glu Thr Ala Pro Glu Asp Ser Ser Pro Arg Gly Thr Leu Ala Ser  
405 410 415

Ser Gly Asp Gly Phe Glu Glu Gly Leu Thr Val Ala Thr Val Val Glu  
420 425 430

Ser Ala Leu Cys Ala Leu Arg Asn Cys Ile Ala Phe Met Pro Pro Ala  
435 440 445

Glu Gln Asn Pro Ala Pro Leu Ala Gln Pro Glu Pro Leu Val Trp Val  
450 455 460

Ser Lys Trp Val Asp Tyr Ser Asn Lys Phe Gly Phe Gly Tyr Gln Leu  
465 470 475 480

Ser Ser Arg Arg Val Ala Val Leu Phe Asn Asp Gly Thr His Met Ala  
485 490 495

Leu Ser Ala Asn Arg Lys Thr Val His Tyr Asn Pro Thr Ser Thr Lys  
500 505 510

His Phe Ser Phe Ser Val Gly Ala Val Pro Arg Ala Leu Gln Pro Gln  
515 520 525

Leu Gly Ile Leu Arg Tyr Phe Ala Ser Tyr Met Glu Gln His Leu Met  
530 535 540

Lys Gly Gly Asp Leu Pro Ser Val Glu Glu Val Glu Val Pro Ala Pro  
545 550 555 560

Pro Leu Leu Leu Gln Trp Val Lys Thr Asp Gln Ala Leu Leu Met Leu  
565 570 575

Phe Ser Asp Gly Thr Val Gln Val Asn Phe Tyr Gly Asp His Thr Lys  
580 585 590

Leu Ile Leu Ser Gly Trp Glu Pro Leu Leu Val Thr Phe Val Ala Arg  
595 600 605

Asn Arg Ser Ala Cys Thr Tyr Leu Ala Ser His Leu Arg Gln Leu Gly  
610 615 620

Cys Ser Pro Asp Leu Arg Gln Arg Leu Arg Tyr Ala Leu Arg Leu Leu  
625                                  630                                  635                                  640

Arg Asp Arg Ser Pro Ala  
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<210> 6  
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<222> (5)..(5)  
<223> PHOSPHORYLATION

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Pro Met Gln Ser Thr Pro Leu  
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<210> 7  
<211> 4  
<212> PRT  
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<220>  
<223> synthetic

<220>  
<221> MISC\_FEATURE  
<222> (1)..(1)  
<223> Xaa = Met, Tyr, Phe, Ile, Leu, His, or Lys

<220>  
<221> MISC\_FEATURE  
<222> (2)..(2)  
<223> Xaa = Ala, His, Met, Thr, Phe, or Gln

<220>  
<221> MISC\_FEATURE  
<222> (3)..(3)  
<223> Xaa = Ser, Ala, Gly, or Thr

<220>  
<221> MISC\_FEATURE  
<222> (4)..(4)  
<223> Xaa = Phosphorylated Serine or Phosphorylated Threonine

<400> 7

Xaa Xaa Xaa Xaa  
1

<210> 8

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<220>

<221> MISC\_FEATURE

<222> (1)..(1)

<223> Xaa = Any amino acid

<220>

<221> MISC\_FEATURE

<222> (2)..(2)

<223> Xaa = Met, Tyr, Phe, Ile, Leu, His, or Lys

<220>

<221> MISC\_FEATURE

<222> (3)..(3)

<223> Xaa = Ala, His, Met, Thr, Phe, or Gln

<220>

<221> MISC\_FEATURE

<222> (4)..(4)

<223> Xaa = Ser, Ala, Gly, or Thr

<220>

<221> MISC\_FEATURE

<222> (5)..(5)

<223> Xaa = phosphorylated Ser or phosphorylated Thr

<220>

<221> MISC\_FEATURE

<222> (6)..(6)

<223> Xaa = Pro, Met, or Asn

<220>

<221> MISC\_FEATURE

<222> (7)..(7)

<223> Xaa = any amino acid

<400> 8

Xaa Xaa Xaa Xaa  
1



<210> 9  
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 <212> PRT  
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 <223> Synthetic

<220>  
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 <222> (4)..(4)  
 <223> PHOSPHORYLATION

<220>  
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 <222> (7)..(7)  
 <223> PHOSPHORYLATION

<400> 9

Met Gln Ser Thr Pro Leu Ser  
 1 5

<210> 10  
 <211> 9  
 <212> PRT  
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<220>  
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<220>  
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 <222> (4)..(4)  
 <223> Xaa = phosphorylated Ser or phosphorylated Thr

<400> 10

Tyr Asp Ile Xaa Gln Val Phe Pro Phe  
 1 5

<210> 11  
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 <213> Homo sapiens

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 tggaactacg agtgcgcaga catgggccag agcgcatttc ccctgccccca ggcaaattcg 180

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tatgcaagaa	aaagaaaaca	accagaaaca	ttggagaaag	ctaaggctac	caccacctac	1920

ccggtcagtc	actcctctgt	agctttctct	ttcttgagaga	aaggaaaaga	cccaaggggt	1980
tggcagcaat	atgtgaaaaa	attcagaatt	tatgttgtct	aattacaaaa	agcaacttct	2040
agaatcttta	aaaataaagg	acgttgtcat	tagttctttg	gtttgtatta	ttctaaaacc	2100
ttccaaatct	taaatttact	ttattttaaa	atgataaaat	gaagttgtca	ttttataaac	2160
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aatctagtht	agattaactg	gcattttggc	ttttcttcca	gctctaaaac	aagctccatc	2640
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tatttggaag	aacctthgtt	tgaaactggc	tctgtacata	caatgaaatt	acatacttat	3060
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gtggcgcgat	ctcagctcac	tgaaaactct	gcctcccggg	ttcatgccat	tcttctgcct	3360
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ttttttthtt	tttttttagta	gaggcgggat	ttcaccgtgt	tagccaggat	agtcttgatc	3480
tctgacctt	gtgatccacc	cgcctggggc	tcccaaagtg	ctaggattac	aggcataagc	3540
cactgcgtcc	agccattctt	gtatthttct	gttgtagaga	tagggthttg	ctatgttggc	3600

catgctggtc tcaaactcct gacctcaagt gatctaccct cccttggcct ctcaagggtgc	3660
tgggattaca ggctgagcc attgcaccca gccatggtct aaaaatcttg attgaaatac	3720
caccttttca tttccagaca cccctattta aaattaccac acccccagca cacactttat	3780
cttctattcc tgctgcttct ccataacact gattactagc tgacattcta tgtaatgtat	3840
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Glu	Pro	Val	Ser	Thr	Lys	Cys	Asp	His	Ile	Phe	Cys	Lys	Phe	Cys	Met
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Thr	Gly	Leu	Glu	Tyr	Ala	Asn	Ser	Tyr	Asn	Phe	Ala	Lys	Lys	Glu	Asn
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Gly Tyr Arg Asn Arg Ala Lys Arg Leu Leu Gln Ser Glu Pro Glu Asn  
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Pro Ser Leu Gln Glu Thr Ser Leu Ser Val Gln Leu Ser Asn Leu Gly  
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Thr Val Arg Thr Leu Arg Thr Lys Gln Arg Ile Gln Pro Gln Lys Thr  
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Ser Val Tyr Ile Glu Leu Gly Ser Asp Ser Ser Glu Asp Thr Val Asn  
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Ala Cys Glu Phe Ser Glu Thr Asp Val Thr Asn Thr Glu His His Gln  
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His Pro Glu Lys Tyr Gln Gly Ser Ser Val Ser Asn Leu His Val Glu  
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Pro Cys Gly Thr Asn Thr His Ala Ser Ser Leu Gln His Glu Asn Ser  
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Asp Val Pro Trp Ile Thr Leu Asn Ser Ser Ile Gln Lys Val Asn Glu  
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Trp Phe Ser Arg Ser Asp Glu Leu Leu Gly Ser Asp Asp Ser His Asp  
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Ala Ser Asp Pro His Glu Ala Leu Ile Cys Lys Ser Glu Arg Val His  
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Tyr Arg Lys Lys Ala Ser Leu Pro Asn Leu Ser His Val Thr Glu Asn  
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Pro Leu Thr Asn Lys Leu Lys Arg Lys Arg Arg Pro Thr Ser Gly Leu  
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Val Met Asn Ile Thr Asn Ser Gly His Glu Asn Lys Thr Lys Gly Asp  
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Ser Ile Gln Asn Glu Lys Asn Pro Asn Pro Ile Glu Ser Leu Glu Lys

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Ala	Pro	Gly	Ser	Phe	Thr	Lys	Cys	Ser	Asn	Thr	Ser	Glu	Leu	Lys	Glu
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Gly Cys Ser Lys Asp Asn Arg Asn Asp Thr Glu Gly Phe Lys Tyr Pro  
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835 840 845

Glu Ser Glu Leu Asp Ala Gln Tyr Leu Gln Asn Thr Phe Lys Val Ser  
850 855 860

Lys Arg Gln Ser Phe Ala Pro Phe Ser Asn Pro Gly Asn Ala Glu Glu  
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Glu Cys Ala Thr Phe Ser Ala His Ser Gly Ser Leu Lys Lys Gln Ser  
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Pro Lys Val Thr Phe Glu Cys Glu Gln Lys Glu Glu Asn Gln Gly Lys  
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Ser Ile Lys Gly Gly Ser Arg Phe Cys Leu Ser Ser Gln Phe Arg Gly  
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<211> 1069
<212> PRT
<213> Homo sapiens

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<400> 14

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Lys Ala Gly Lys Ala Lys Glu Val Ser Tyr Asn Ala Leu Ala Ser His  
 35 40 45

Ile Ile Ser Glu Asp Gly Asp Asn Pro Glu Val Gly Glu Ala Arg Glu  
 50 55 60

Val Phe Asp Leu Pro Val Val Lys Pro Ser Trp Val Ile Leu Ser Val  
 65 70 75 80

Gln Cys Gly Thr Leu Leu Pro Val Asn Gly Phe Ser Pro Glu Ser Cys  
 85 90 95

Gln Ile Phe Phe Gly Ile Thr Ala Cys Leu Ser Gln Val Ser Ser Glu  
 100 105 110

Asp Arg Ser Ala Leu Trp Ala Leu Val Thr Phe Tyr Gly Gly Asp Cys  
 115 120 125

Gln Leu Thr Leu Asn Lys Lys Cys Thr His Leu Ile Val Pro Glu Pro  
 130 135 140

Lys Gly Glu Lys Tyr Glu Cys Ala Leu Lys Arg Ala Ser Ile Lys Ile  
 145 150 155 160

Val Thr Pro Asp Trp Val Leu Asp Cys Val Ser Glu Lys Thr Lys Lys  
 165 170 175

Asp Glu Ala Phe Tyr His Pro Arg Leu Ile Ile Tyr Glu Glu Glu Glu  
 180 185 190

Glu Glu Glu Glu Glu Glu Glu Glu Val Glu Asn Glu Glu Gln Asp Ser  
 195 200 205

Gln Asn Glu Gly Ser Thr Asp Glu Lys Ser Ser Pro Ala Ser Ser Gln  
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Glu Gly Ser Pro Ser Gly Asp Gln Gln Phe Ser Pro Lys Ser Asn Thr  
 225 230 235 240

Glu Lys Ser Lys Gly Glu Leu Met Phe Asp Asp Ser Ser Asp Ser Ser  
 245 250 255  
 Pro Glu Lys Gln Glu Arg Asn Leu Asn Trp Thr Pro Ala Glu Val Pro  
 260 265 270  
 Gln Leu Ala Ala Ala Lys Arg Arg Leu Pro Gln Gly Lys Glu Pro Gly  
 275 280 285  
 Leu Ile Asn Leu Cys Ala Asn Val Pro Pro Val Pro Gly Asn Ile Leu  
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 Pro Pro Glu Val Arg Gly Asn Leu Met Ala Ala Gly Gln Asn Leu Gln  
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 Ser Ser Glu Arg Ser Glu Met Ile Ala Thr Trp Ser Pro Ala Val Arg  
 325 330 335  
 Thr Leu Arg Asn Ile Thr Asn Asn Ala Asp Ile Gln Gln Met Asn Arg  
 340 345 350  
 Pro Ser Asn Val Ala His Ile Leu Gln Thr Leu Ser Ala Pro Thr Lys  
 355 360 365  
 Asn Leu Glu Gln Gln Val Asn His Ser Gln Gln Gly His Thr Asn Ala  
 370 375 380  
 Asn Ala Val Leu Phe Ser Gln Val Lys Val Thr Pro Glu Thr His Met  
 385 390 395 400  
 Leu Gln Gln Gln Gln Gln Ala Gln Gln Gln Gln Gln Gln His Pro Val  
 405 410 415  
 Leu His Leu Gln Pro Gln Gln Ile Met Gln Leu Gln Gln Gln Gln Gln  
 420 425 430  
 Gln Gln Ile Ser Gln Gln Pro Tyr Pro Gln Gln Pro Pro His Pro Phe  
 435 440 445  
 Ser Gln Gln Gln Gln Gln Gln Gln Gln Ala His Pro His Gln Phe Ser  
 450 455 460  
 Gln Gln Gln Leu Gln Phe Pro Gln Gln Gln Leu His Pro Pro Gln Gln

465		470		475		480
Leu His Arg Pro Gln Gln Gln Leu Gln Pro Phe Gln Gln Gln His Ala						
	485		490		495	
Leu Gln Gln Gln Phe His Gln Leu Gln Gln His Gln Leu Gln Gln Gln						
	500		505		510	
Gln Leu Ala Gln Leu Gln Gln Gln His Ser Leu Leu Gln Gln Gln Gln						
	515		520		525	
Gln Gln Gln Ile Gln Gln Gln Gln Leu Gln Arg Met His Gln Gln Gln						
	530		535		540	
Gln Gln Gln Gln Met Gln Ser Gln Thr Ala Pro His Leu Ser Gln Thr						
545		550		555		560
Ser Gln Ala Leu Gln His Gln Val Pro Pro Gln Gln Pro Pro Gln Gln						
	565		570		575	
Gln Gln Gln Gln Gln Pro Pro Pro Ser Pro Gln Gln His Gln Leu Phe						
	580		585		590	
Gly His Asp Pro Ala Val Glu Ile Pro Glu Glu Gly Phe Leu Leu Gly						
	595		600		605	
Cys Val Phe Ala Ile Ala Asp Tyr Pro Glu Gln Met Ser Asp Lys Gln						
	610		615		620	
Leu Leu Ala Thr Trp Lys Arg Ile Ile Gln Ala His Gly Gly Thr Val						
625		630		635		640
Asp Pro Thr Phe Thr Ser Arg Cys Thr His Leu Leu Cys Glu Ser Gln						
	645		650		655	
Val Ser Ser Ala Tyr Ala Gln Ala Ile Arg Glu Arg Lys Arg Cys Val						
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Thr Ala His Trp Leu Asn Thr Val Leu Lys Lys Lys Lys Met Val Pro						
	675		680		685	
Pro His Arg Ala Leu His Phe Pro Val Ala Phe Pro Pro Gly Gly Lys						
	690		695		700	

Pro Cys Ser Gln His Ile Ile Ser Val Thr Gly Phe Val Asp Ser Asp  
705 710 715 720

Arg Asp Asp Leu Lys Leu Met Ala Tyr Leu Ala Gly Ala Lys Tyr Thr  
725 730 735

Gly Tyr Leu Cys Arg Ser Asn Thr Val Leu Ile Cys Lys Glu Pro Thr  
740 745 750

Gly Leu Lys Tyr Glu Lys Ala Lys Glu Trp Arg Ile Pro Cys Val Asn  
755 760 765

Ala Gln Trp Leu Gly Asp Ile Leu Leu Gly Asn Phe Glu Ala Leu Arg  
770 775 780

Gln Ile Gln Tyr Ser Arg Tyr Thr Ala Phe Ser Leu Gln Asp Pro Phe  
785 790 795 800

Ala Pro Thr Gln His Leu Val Leu Asn Leu Leu Asp Ala Trp Arg Val  
805 810 815

Pro Leu Lys Val Ser Ala Glu Leu Leu Met Ser Ile Arg Leu Pro Pro  
820 825 830

Lys Leu Lys Gln Asn Glu Val Ala Asn Val Gln Pro Ser Ser Lys Arg  
835 840 845

Ala Arg Ile Glu Asp Val Pro Pro Pro Thr Lys Lys Leu Thr Pro Glu  
850 855 860

Leu Thr Pro Phe Val Leu Phe Thr Gly Phe Glu Pro Val Gln Val Gln  
865 870 875 880

Gln Tyr Ile Lys Lys Leu Tyr Ile Leu Gly Gly Glu Val Ala Glu Ser  
885 890 895

Ala Gln Lys Cys Thr His Leu Ile Ala Ser Lys Val Thr Arg Thr Val  
900 905 910

Lys Phe Leu Thr Ala Ile Ser Val Val Lys His Ile Val Thr Pro Glu  
915 920 925



Trp Leu Glu Glu Cys Phe Arg Cys Gln Lys Phe Ile Asp Glu Gln Asn  
 930 935 940

Tyr Ile Leu Arg Asp Ala Glu Ala Glu Val Leu Phe Ser Phe Ser Leu  
 945 950 955 960

Glu Glu Ser Leu Lys Arg Ala His Val Ser Pro Leu Phe Lys Ala Lys  
 965 970 975

Tyr Phe Tyr Ile Thr Pro Gly Ile Cys Pro Ser Leu Ser Thr Met Lys  
 980 985 990

Ala Ile Val Glu Cys Ala Gly Gly Lys Val Leu Ser Lys Gln Pro Ser  
 995 1000 1005

Phe Arg Lys Leu Met Glu His Lys Gln Asn Ser Ser Leu Ser Glu  
 1010 1015 1020

Ile Ile Leu Ile Ser Cys Glu Asn Asp Leu His Leu Cys Arg Glu  
 1025 1030 1035

Tyr Phe Ala Arg Gly Ile Asp Val His Asn Ala Glu Phe Val Leu  
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Thr Gly Val Leu Thr Gln Thr Leu Asp Tyr Glu Ser Tyr Lys Phe  
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Asn

<210> 15  
 <211> 757  
 <212> PRT  
 <213> Homo sapiens

<400> 15

Met Ala Ala Gly Gln Asn Leu Gln Ser Ser Glu Arg Ser Glu Met Ile  
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Ala Thr Trp Ser Pro Ala Val Arg Thr Leu Arg Asn Ile Thr Asn Asn  
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Ala Asp Ile Gln Gln Met Asn Arg Pro Ser Asn Val Ala His Ile Leu

35	40	45
Gln Thr Leu Ser Ala Pro Thr Lys Asn Leu Glu Gln Gln Val Asn His		
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Ser Gln Gln Gly His Thr Asn Ala Asn Ala Val Leu Phe Ser Gln Val		
65	70	75
Lys Val Thr Pro Glu Thr His Met Leu Gln Gln Gln Gln Gln Ala Gln		
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Gln Gln Gln Gln Gln His Pro Val Leu His Leu Gln Pro Gln Gln Ile		
100	105	110
Met Gln Leu Gln Gln Gln Gln Gln Gln Gln Ile Ser Gln Gln Pro Tyr		
115	120	125
Pro Gln Gln Pro Pro His Pro Phe Ser Gln Gln Gln Gln Gln Gln Gln		
130	135	140
Gln Ala His Pro His Gln Phe Ser Gln Gln Gln Leu Gln Phe Pro Gln		
145	150	155
Gln Gln Leu His Pro Pro Gln Gln Leu His Arg Pro Gln Gln Gln Leu		
165	170	175
Gln Pro Phe Gln Gln Gln His Ala Leu Gln Gln Gln Phe His Gln Leu		
180	185	190
Gln Gln His Gln Leu Gln Gln Gln Gln Leu Ala Gln Leu Gln Gln Gln		
195	200	205
His Ser Leu Leu Gln Gln Gln Gln Gln Gln Gln Ile Gln Gln Gln Gln		
210	215	220
Leu Gln Arg Met His Gln Gln Gln Gln Gln Gln Gln Met Gln Ser Gln		
225	230	235
Thr Ala Pro His Leu Ser Gln Thr Ser Gln Ala Leu Gln His Gln Val		
245	250	255
Pro Pro Gln Gln Pro Pro Gln Gln Gln Gln Gln Gln Gln Pro Pro Pro		
260	265	270

Ser Pro Gln Gln His Gln Leu Phe Gly His Asp Pro Ala Val Glu Ile  
275 280 285

Pro Glu Glu Gly Phe Leu Leu Gly Cys Val Phe Ala Ile Ala Asp Tyr  
290 295 300

Pro Glu Gln Met Ser Asp Lys Gln Leu Leu Ala Thr Trp Lys Arg Ile  
305 310 315 320

Ile Gln Ala His Gly Gly Thr Val Asp Pro Thr Phe Thr Ser Arg Cys  
325 330 335

Thr His Leu Leu Cys Glu Ser Gln Val Ser Ser Ala Tyr Ala Gln Ala  
340 345 350

Ile Arg Glu Arg Lys Arg Cys Val Thr Ala His Trp Leu Asn Thr Val  
355 360 365

Leu Lys Lys Lys Lys Met Val Pro Pro His Arg Ala Leu His Phe Pro  
370 375 380

Val Ala Phe Pro Pro Gly Gly Lys Pro Cys Ser Gln His Ile Ile Ser  
385 390 395 400

Val Thr Gly Phe Val Asp Ser Asp Arg Asp Asp Leu Lys Leu Met Ala  
405 410 415

Tyr Leu Ala Gly Ala Lys Tyr Thr Gly Tyr Leu Cys Arg Ser Asn Thr  
420 425 430

Val Leu Ile Cys Lys Glu Pro Thr Gly Leu Lys Tyr Glu Lys Ala Lys  
435 440 445

Glu Trp Arg Ile Pro Cys Val Asn Ala Gln Trp Leu Gly Asp Ile Leu  
450 455 460

Leu Gly Asn Phe Glu Ala Leu Arg Gln Ile Gln Tyr Ser Arg Tyr Thr  
465 470 475 480

Ala Phe Ser Leu Gln Asp Pro Phe Ala Pro Thr Gln His Leu Val Leu  
485 490 495

Asn Leu Leu Asp Ala Trp Arg Val Pro Leu Lys Val Ser Ala Glu Leu  
500 505 510

Leu Met Ser Ile Arg Leu Pro Pro Lys Leu Lys Gln Asn Glu Val Ala  
515 520 525

Asn Val Gln Pro Ser Ser Lys Arg Ala Arg Ile Glu Asp Val Pro Pro  
530 535 540

Pro Thr Lys Lys Leu Thr Pro Glu Leu Thr Pro Phe Val Leu Phe Thr  
545 550 555 560

Gly Phe Glu Pro Val Gln Val Gln Gln Tyr Ile Lys Lys Leu Tyr Ile  
565 570 575

Leu Gly Gly Glu Val Ala Glu Ser Ala Gln Lys Cys Thr His Leu Ile  
580 585 590

Ala Ser Lys Val Thr Arg Thr Val Lys Phe Leu Thr Ala Ile Ser Val  
595 600 605

Val Lys His Ile Val Thr Pro Glu Trp Leu Glu Glu Cys Phe Arg Cys  
610 615 620

Gln Lys Phe Ile Asp Glu Gln Asn Tyr Ile Leu Arg Asp Ala Glu Ala  
625 630 635 640

Glu Val Leu Phe Ser Phe Ser Leu Glu Glu Ser Leu Lys Arg Ala His  
645 650 655

Val Ser Pro Leu Phe Lys Ala Lys Tyr Phe Tyr Ile Thr Pro Gly Ile  
660 665 670

Cys Pro Ser Leu Ser Thr Met Lys Ala Ile Val Glu Cys Ala Gly Gly  
675 680 685

Lys Val Leu Ser Lys Gln Pro Ser Phe Arg Lys Leu Met Glu His Lys  
690 695 700

Gln Asn Ser Ser Leu Ser Glu Ile Ile Leu Ile Ser Cys Glu Asn Asp  
705 710 715 720

Leu His Leu Cys Arg Glu Tyr Phe Ala Arg Gly Ile Asp Val His Asn  
725 730 735

Ala Glu Phe Val Leu Thr Gly Val Leu Thr Gln Thr Leu Asp Tyr Glu  
740 745 750

Ser Tyr Lys Phe Asn  
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<210> 16  
<211> 1069  
<212> PRT  
<213> Homo sapiens

<400> 16

Met Ser Asp Gln Ala Pro Lys Val Pro Glu Glu Met Phe Arg Glu Val  
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Lys Tyr Tyr Ala Val Gly Asp Ile Asp Pro Gln Val Ile Gln Leu Leu  
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Lys Ala Gly Lys Ala Lys Glu Val Ser Tyr Asn Ala Leu Ala Ser His  
35 40 45

Ile Ile Ser Glu Asp Gly Asp Asn Pro Glu Val Gly Glu Ala Arg Glu  
50 55 60

Val Phe Asp Leu Pro Val Val Lys Pro Ser Trp Val Ile Leu Ser Val  
65 70 75 80

Gln Cys Gly Thr Leu Leu Pro Val Asn Gly Phe Ser Pro Glu Ser Cys  
85 90 95

Gln Ile Phe Phe Gly Ile Thr Ala Cys Leu Ser Gln Val Ser Ser Glu  
100 105 110

Asp Arg Ser Ala Leu Trp Ala Leu Val Thr Phe Tyr Gly Gly Asp Cys  
115 120 125

Gln Leu Thr Leu Asn Lys Lys Cys Thr His Leu Ile Val Pro Glu Pro  
130 135 140

Lys Gly Glu Lys Tyr Glu Cys Ala Leu Lys Arg Ala Ser Ile Lys Ile  
145 150 155 160

Val Thr Pro Asp Trp Val Leu Asp Cys Val Ser Glu Lys Thr Lys Lys  
165 170 175

Asp Glu Ala Phe Tyr His Pro Arg Leu Ile Ile Tyr Glu Glu Glu Glu  
180 185 190

Glu Glu Glu Glu Glu Glu Glu Glu Val Glu Asn Glu Glu Gln Asp Ser  
195 200 205

Gln Asn Glu Gly Ser Thr Asp Glu Lys Ser Ser Pro Ala Ser Ser Gln  
210 215 220

Glu Gly Ser Pro Ser Gly Asp Gln Gln Phe Ser Pro Lys Ser Asn Thr  
225 230 235 240

Glu Lys Ser Lys Gly Glu Leu Met Phe Asp Asp Ser Ser Asp Ser Ser  
245 250 255

Pro Glu Lys Gln Glu Arg Asn Leu Asn Trp Thr Pro Ala Glu Val Pro  
260 265 270

Gln Leu Ala Ala Ala Lys Arg Arg Leu Pro Gln Gly Lys Glu Pro Gly  
275 280 285

Leu Ile Asn Leu Cys Ala Asn Val Pro Pro Val Pro Gly Asn Ile Leu  
290 295 300

Pro Pro Glu Val Arg Gly Asn Leu Met Ala Ala Gly Gln Asn Leu Gln  
305 310 315 320

Ser Ser Glu Arg Ser Glu Met Ile Ala Thr Trp Ser Pro Ala Val Arg  
325 330 335

Thr Leu Arg Asn Ile Thr Asn Asn Ala Asp Ile Gln Gln Met Asn Arg  
340 345 350

Pro Ser Asn Val Ala His Ile Leu Gln Thr Leu Ser Ala Pro Thr Lys  
355 360 365

Asn Leu Glu Gln Gln Val Asn His Ser Gln Gln Gly His Thr Asn Ala  
370 375 380

Asn Ala Val Leu Phe Ser Gln Val Lys Val Thr Pro Glu Thr His Met  
 385 390 395 400

Leu Gln Gln Gln Gln Gln Ala Gln Gln Gln Gln Gln Gln His Pro Val  
 405 410 415

Leu His Leu Gln Pro Gln Gln Ile Met Gln Leu Gln Gln Gln Gln Gln  
 420 425 430

Gln Gln Ile Ser Gln Gln Pro Tyr Pro Gln Gln Pro Pro His Pro Phe  
 435 440 445

Ser Gln Gln Gln Gln Gln Gln Gln Gln Ala His Pro His Gln Phe Ser  
 450 455 460

Gln Gln Gln Leu Gln Phe Pro Gln Gln Gln Leu His Pro Pro Gln Gln  
 465 470 475 480

Leu His Arg Pro Gln Gln Gln Leu Gln Pro Phe Gln Gln Gln His Ala  
 485 490 495

Leu Gln Gln Gln Phe His Gln Leu Gln Gln His Gln Leu Gln Gln Gln  
 500 505 510

Gln Leu Ala Gln Leu Gln Gln Gln His Ser Leu Leu Gln Gln Gln Gln  
 515 520 525

Gln Gln Gln Ile Gln Gln Gln Gln Leu Gln Arg Met His Gln Gln Gln  
 530 535 540

Gln Gln Gln Gln Met Gln Ser Gln Thr Ala Pro His Leu Ser Gln Thr  
 545 550 555 560

Ser Gln Ala Leu Gln His Gln Val Pro Pro Gln Gln Pro Pro Gln Gln  
 565 570 575

Gln Gln Gln Gln Gln Pro Pro Pro Ser Pro Gln Gln His Gln Leu Phe  
 580 585 590

Gly His Asp Pro Ala Val Glu Ile Pro Glu Glu Gly Phe Leu Leu Gly  
 595 600 605

Cys Val Phe Ala Ile Ala Asp Tyr Pro Glu Gln Met Ser Asp Lys Gln  
 610 615 620

Leu Leu Ala Thr Trp Lys Arg Ile Ile Gln Ala His Gly Gly Thr Val  
 625 630 635 640

Asp Pro Thr Phe Thr Ser Arg Cys Thr His Leu Leu Cys Glu Ser Gln  
 645 650 655

Val Ser Ser Ala Tyr Ala Gln Ala Ile Arg Glu Arg Lys Arg Cys Val  
 660 665 670

Thr Ala His Trp Leu Asn Thr Val Leu Lys Lys Lys Lys Met Val Pro  
 675 680 685

Pro His Arg Ala Leu His Phe Pro Val Ala Phe Pro Pro Gly Gly Lys  
 690 695 700

Pro Cys Ser Gln His Ile Ile Ser Val Thr Gly Phe Val Asp Ser Asp  
 705 710 715 720

Arg Asp Asp Leu Lys Leu Met Ala Tyr Leu Ala Gly Ala Lys Tyr Thr  
 725 730 735

Gly Tyr Leu Cys Arg Ser Asn Thr Val Leu Ile Cys Lys Glu Pro Thr  
 740 745 750

Gly Leu Lys Tyr Glu Lys Ala Lys Glu Trp Arg Ile Pro Cys Val Asn  
 755 760 765

Ala Gln Trp Leu Gly Asp Ile Leu Leu Gly Asn Phe Glu Ala Leu Arg  
 770 775 780

Gln Ile Gln Tyr Ser Arg Tyr Thr Ala Phe Ser Leu Gln Asp Pro Phe  
 785 790 795 800

Ala Pro Thr Gln His Leu Val Leu Asn Leu Leu Asp Ala Trp Arg Val  
 805 810 815

Pro Leu Lys Val Ser Ala Glu Leu Leu Met Ser Ile Arg Leu Pro Pro  
 820 825 830

Lys Leu Lys Gln Asn Glu Val Ala Asn Val Gln Pro Ser Ser Lys Arg



835	840	845
Ala Arg Ile Glu Asp Val Pro Pro Pro Thr Lys Lys Leu Thr Pro Glu 850 855 860		
Leu Thr Pro Phe Val Leu Phe Thr Gly Phe Glu Pro Val Gln Val Gln 865 870 875 880		
Gln Tyr Ile Lys Lys Leu Tyr Ile Leu Gly Gly Glu Val Ala Glu Ser 885 890 895		
Ala Gln Lys Cys Thr His Leu Ile Ala Ser Lys Val Thr Arg Thr Val 900 905 910		
Lys Phe Leu Thr Ala Ile Ser Val Val Lys His Ile Val Thr Pro Glu 915 920 925		
Trp Leu Glu Glu Cys Phe Arg Cys Gln Lys Phe Ile Asp Glu Gln Asn 930 935 940		
Tyr Ile Leu Arg Asp Ala Glu Ala Glu Val Leu Phe Ser Phe Ser Leu 945 950 955 960		
Glu Glu Ser Leu Lys Arg Ala His Val Ser Pro Leu Phe Lys Ala Lys 965 970 975		
Tyr Phe Tyr Ile Thr Pro Gly Ile Cys Pro Ser Leu Ser Thr Met Lys 980 985 990		
Ala Ile Val Glu Cys Ala Gly Gly Lys Val Leu Ser Lys Gln Pro Ser 995 1000 1005		
Phe Arg Lys Leu Met Glu His Lys Gln Asn Ser Ser Leu Ser Glu 1010 1015 1020		
Ile Ile Leu Ile Ser Cys Glu Asn Asp Leu His Leu Cys Arg Glu 1025 1030 1035		
Tyr Phe Ala Arg Gly Ile Asp Val His Asn Ala Glu Phe Val Leu 1040 1045 1050		
Thr Gly Val Leu Thr Gln Thr Leu Asp Tyr Glu Ser Tyr Lys Phe 1055 1060 1065		

Asn

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<211> 2137  
<212> DNA  
<213> Homo sapiens

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ctaattacat agctcccgag gtgctgagca agaaagggca cagtttcgag gtggatgtgt 780  
gggtccattgg gtgtatcatg tataccttgt tagtgggcaa accacctttt gagacttctt 840  
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gatatgccca ggagaaactt aggaaaatgc tggagaagat gttcacataa gcgtagccag	2040
cccaactatc attataaggc cgaatgtagg tttaacgtaa ttcacgaatg ccctggccaa	2100
cttcatttat agcccagaaa gtatcctcct ctcccatcat cttttaaaat tgtagttccc	2160
gttcaaattg atttggttga tgtttataga atttatttgt ttttgcccct tccccttcat	2220
atcgaaaata ctgcttaagt tatattcatc gtcagtgttg ggcctccctc aaaagtaatt	2280
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<210> 23  
 <211> 2629  
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 <213> *Drosophila melanogaster*

<400> 23	
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gggcaaaacc gagatttgat cgccgcttct cttgtcaacc gtgtggatct gatctccgtt	180
tccgaggcac tttcagccga tcgccgttg aattataggc tcagaacgag gagtatcgcc	240
gcaaaactcc aggcgaacgc aaacgcaaaa ggggcagtcc gtagtaaaga agaaaggaga	300
gcaagatggc cgcaagccc gaggataaga gcacggatat tccggatcgc ctgctcgaca	360
tcaaccagcg gaaaacctac aagcgcatgc gggtcttcgg caagggcggg tttgcaaaat	420
gttacgagat catcgatgtg gaaaccgacg acgtcttcgc cggcaagatc gtatccaaga	480
agctgatgat caaacacaat cagaaggaga agaccgcca ggagataact attcaccgca	540
gccttaacca tccgaacatt gtcaagtttc acaactactt tgaagattcg cagaatatct	600
acattgtgct ggagctgtgc aagaaaagat ccatgatgga gctgcacaaa cgtaggaaaa	660
gcattacgga gttcgaatgc cgctactaca tttaccagat aatccagggc gttaagtact	720
tgcacgataa ccgcattatc catcgagatc tgaagctggg caatctcttc ctcaacgatt	780
tgttgcacgt gaagatcggg gatttcgggt tggccacgcg cattgagtat gagggcgagc	840
gaaaaaagac cttatgcgga acgccaact atatagcccc ggagatcctc accaagaagg	900
gccactcctt cgagggtggac atctgggtcga ttggctgcgt catgtacaca ctgcttgtgg	960
gccagccgcc gttcgaaaacc aagactctga aggatacgt ctcgaaaatc aagaagtgcg	1020
agtaccgcgt gccagctac ttaaggaaac cggcggcgga tatgggtcat gccatgctgc	1080

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ggcccgcgca	cactcgtctg	gagtcgacct	tcctcaaggc	caatctgcac	gacgccatta	1320
ccgcgtcagc	gcaggtgtgc	cgccacagcg	aggactatcg	cagcgatatc	gagagcctgt	1380
accagcagct	cactaatctt	atcaacggaa	agccgcgaat	tctgcaaggc	aatctgggcg	1440
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gcgacaagta	cggattttgg	taccagctgt	gcgatgaggg	catcggcgtg	atgttcaacg	1560
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catgtgccgt	agttatgcat	ttgaccaacg	gttctgtgca	gctaaacttc	tcagatcaca	1860
tgaagctcat	cctctgcccc	cgcatgagtg	ctataaccta	tatggaccag	gagaagaact	1920
tccgcaccta	ccgattttcg	accattgtgg	agaacggcgt	gtctaaagac	ttgtaccaga	1980
agatccgata	tgcccaggag	aaacttagga	aaatgctgga	gaagatgttc	acataagcgt	2040
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ggccaacttc	atztatagcc	cagaaaagtat	cctcctctcc	catcatcttt	taaaattgta	2160
gttcccgttc	aaattgattt	gttcgatgtt	tatagaattt	atgtgttttt	gccccttccc	2220
cttcatatcg	aaaatactgc	ttaagttata	ttcatcgtca	gtgttggggc	tcctcaaaa	2280
gtaatttaat	atatctgttt	aatggttttc	gtacacgatc	cgatcactta	atgcatttta	2340
aagagatcaa	attaaatggt	taaactaagc	aaacgtgttt	cgaatgcct	atattcaccg	2400
aggtgactga	taacaaaatt	ttaatgctgg	atacattata	aaagtaatag	tgtaatattg	2460
tgcgttcgta	gtgcgctata	gcgccattta	aaataataca	taagttacaa	tactgctgca	2520
aagtgtttaa	gtgtacaagt	atattcaact	ttggccagaa	atatctgtag	ctataggata	2580
caatatgtaa	atgcttttga	actaaaagcg	aatatatata	aaatttaat		2629

<210> 24  
 <211> 603  
 <212> PRT  
 <213> Homo sapiens

<400> 24

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Pro Gly Lys Ala Gly Val Pro Gly Val Ala Ala Pro Gly Ala Pro Ala  
20 25 30

Ala Ala Pro Pro Ala Lys Glu Ile Pro Glu Val Leu Val Asp Pro Arg  
35 40 45

Ser Arg Arg Arg Tyr Val Arg Gly Arg Phe Leu Gly Lys Gly Gly Phe  
50 55 60

Ala Lys Cys Phe Glu Ile Ser Asp Ala Asp Thr Lys Glu Val Phe Ala  
65 70 75 80

Gly Lys Ile Val Pro Lys Ser Leu Leu Leu Lys Pro His Gln Arg Glu  
85 90 95

Lys Met Ser Met Glu Ile Ser Ile His Arg Ser Leu Ala His Gln His  
100 105 110

Val Val Gly Phe His Gly Phe Phe Glu Asp Asn Asp Phe Val Phe Val  
115 120 125

Val Leu Glu Leu Cys Arg Arg Arg Ser Leu Leu Glu Leu His Lys Arg  
130 135 140

Arg Lys Ala Leu Thr Glu Pro Glu Ala Arg Tyr Tyr Leu Arg Gln Ile  
145 150 155 160

Val Leu Gly Cys Gln Tyr Leu His Arg Asn Arg Val Ile His Arg Asp  
165 170 175

Leu Lys Leu Gly Asn Leu Phe Leu Asn Glu Asp Leu Glu Val Lys Ile  
180 185 190

Gly Asp Phe Gly Leu Ala Thr Lys Val Glu Tyr Asp Gly Glu Arg Lys  
195 200 205

Lys Thr Leu Cys Gly Thr Pro Asn Tyr Ile Ala Pro Glu Val Leu Ser  
210 215 220

Lys Lys Gly His Ser Phe Glu Val Asp Val Trp Ser Ile Gly Cys Ile  
 225 230 235 240

Met Tyr Thr Leu Leu Val Gly Lys Pro Pro Phe Glu Thr Ser Cys Leu  
 245 250 255

Lys Glu Thr Tyr Leu Arg Ile Lys Lys Asn Glu Tyr Ser Ile Pro Lys  
 260 265 270

His Ile Asn Pro Val Ala Ala Ser Leu Ile Gln Lys Met Leu Gln Thr  
 275 280 285

Asp Pro Thr Ala Arg Pro Thr Ile Asn Glu Leu Leu Asn Asp Glu Phe  
 290 295 300

Phe Thr Ser Gly Tyr Ile Pro Ala Arg Leu Pro Ile Thr Cys Leu Thr  
 305 310 315 320

Ile Pro Pro Arg Phe Ser Ile Ala Pro Ser Ser Leu Asp Pro Ser Asn  
 325 330 335

Arg Lys Pro Leu Thr Val Leu Asn Lys Gly Leu Glu Asn Pro Leu Pro  
 340 345 350

Glu Arg Pro Arg Glu Lys Glu Glu Pro Val Val Arg Glu Thr Gly Glu  
 355 360 365

Val Val Asp Cys His Leu Ser Asp Met Leu Gln Gln Leu His Ser Val  
 370 375 380

Asn Ala Ser Lys Pro Ser Glu Arg Gly Leu Val Arg Gln Glu Glu Ala  
 385 390 395 400

Glu Asp Pro Ala Cys Ile Pro Ile Phe Trp Val Ser Lys Trp Val Asp  
 405 410 415

Tyr Ser Asp Lys Tyr Gly Leu Gly Tyr Gln Leu Cys Asp Asn Ser Val  
 420 425 430

Gly Val Leu Phe Asn Asp Ser Thr Arg Leu Ile Leu Tyr Asn Asp Gly  
 435 440 445

Asp Ser Leu Gln Tyr Ile Glu Arg Asp Gly Thr Glu Ser Tyr Leu Thr  
 450 455 460

Val Ser Ser His Pro Asn Ser Leu Met Lys Lys Ile Thr Leu Leu Lys  
 465 470 475 480

Tyr Phe Arg Asn Tyr Met Ser Glu His Leu Leu Lys Ala Gly Ala Asn  
 485 490 495

Ile Thr Pro Arg Glu Gly Asp Glu Leu Ala Arg Leu Pro Tyr Leu Arg  
 500 505 510

Thr Trp Phe Arg Thr Arg Ser Ala Ile Ile Leu His Leu Ser Asn Gly  
 515 520 525

Ser Val Gln Ile Asn Phe Phe Gln Asp His Thr Lys Leu Ile Leu Cys  
 530 535 540

Pro Leu Met Ala Ala Val Thr Tyr Ile Asp Glu Lys Arg Asp Phe Arg  
 545 550 555 560

Thr Tyr Arg Leu Ser Leu Leu Glu Glu Tyr Gly Cys Cys Lys Glu Leu  
 565 570 575

Ala Ser Arg Leu Arg Tyr Ala Arg Thr Met Val Asp Lys Leu Leu Ser  
 580 585 590

Ser Arg Ser Ala Ser Asn Arg Leu Lys Ala Ser  
 595 600

<210> 25  
 <211> 603  
 <212> PRT  
 <213> Mus musculus

<400> 25

Met Asn Ala Ala Ala Lys Ala Gly Lys Leu Ala Arg Ala Pro Ala Asp  
 1 5 10 15

Leu Gly Lys Gly Gly Val Pro Gly Asp Ala Val Pro Gly Ala Pro Val  
 20 25 30

Ala Ala Pro Leu Ala Lys Glu Ile Pro Glu Val Leu Val Asp Pro Arg

35	40	45
Ser Arg Arg Gln Tyr Val Arg Gly Arg Phe Leu Gly Lys Gly Gly Phe		
50	55	60
Ala Lys Cys Phe Glu Ile Ser Asp Ala Asp Thr Lys Glu Val Phe Ala		
65	70	75
Gly Lys Ile Val Pro Lys Ser Leu Leu Leu Lys Pro His Gln Lys Glu		
	85	90
Lys Met Ser Met Glu Ile Ser Ile His Arg Ser Leu Ala His Gln His		
	100	105
Val Val Gly Phe His Asp Phe Phe Glu Asp Ser Asp Phe Val Phe Val		
	115	120
Val Leu Glu Leu Cys Arg Arg Arg Ser Leu Leu Glu Leu His Lys Arg		
	130	140
Arg Lys Ala Leu Thr Glu Pro Glu Ala Arg Tyr Tyr Leu Arg Gln Ile		
145	150	155
Val Leu Gly Cys Gln Tyr Leu His Arg Asn Gln Val Ile His Arg Asp		
	165	170
Leu Lys Leu Gly Asn Leu Phe Leu Asn Glu Asp Leu Glu Val Lys Ile		
	180	185
Gly Asp Phe Gly Leu Ala Thr Lys Val Glu Tyr Glu Gly Glu Arg Lys		
	195	200
Lys Thr Leu Cys Gly Thr Pro Asn Tyr Ile Ala Pro Glu Val Leu Ser		
	210	215
Lys Lys Gly His Ser Phe Glu Val Asp Val Trp Ser Ile Gly Cys Ile		
225	230	235
Met Tyr Thr Leu Leu Val Gly Lys Pro Pro Phe Glu Thr Ser Cys Leu		
	245	250
Lys Glu Thr Tyr Leu Arg Ile Lys Lys Asn Glu Tyr Ser Ile Pro Lys		
	260	265
		270



His Ile Asn Pro Val Ala Ala Ser Leu Ile Gln Lys Met Leu Gln Thr  
275 280 285

Asp Pro Thr Ala Arg Pro Thr Ile His Glu Leu Leu Asn Asp Glu Phe  
290 295 300

Phe Thr Ser Gly Tyr Ile Pro Ala Arg Leu Pro Ile Thr Cys Leu Thr  
305 310 315 320

Ile Pro Pro Arg Phe Ser Ile Ala Pro Ser Ser Leu Asp Pro Ser Ser  
325 330 335

Arg Lys Pro Leu Lys Val Leu Asn Lys Gly Val Glu Asn Pro Leu Pro  
340 345 350

Asp Arg Pro Arg Glu Lys Glu Glu Pro Val Val Arg Glu Thr Asn Glu  
355 360 365

Ala Ile Glu Cys His Leu Ser Asp Leu Leu Gln Gln Leu Thr Ser Val  
370 375 380

Asn Ala Ser Lys Pro Ser Glu Arg Gly Leu Val Arg Gln Glu Glu Ala  
385 390 395 400

Glu Asp Pro Ala Cys Ile Pro Ile Phe Trp Val Ser Lys Trp Val Asp  
405 410 415

Tyr Ser Asp Lys Tyr Gly Leu Gly Tyr Gln Leu Cys Asp Asn Ser Val  
420 425 430

Gly Val Leu Phe Asn Asp Ser Thr Arg Leu Ile Leu Tyr Asn Asp Gly  
435 440 445

Asp Ser Leu Gln Tyr Ile Glu Arg Asp Gly Thr Glu Ser Tyr Leu Thr  
450 455 460

Val Ser Ser His Pro Asn Ser Leu Met Lys Lys Ile Thr Leu Leu Asn  
465 470 475 480

Tyr Phe Arg Asn Tyr Met Ser Glu His Leu Leu Lys Ala Gly Ala Asn  
485 490 495

Ile Thr Pro Arg Glu Gly Asp Glu Leu Ala Arg Leu Pro Tyr Leu Arg  
500 505 510

Thr Trp Phe Arg Thr Arg Ser Ala Ile Ile Leu His Leu Ser Asn Gly  
515 520 525

Thr Val Gln Ile Asn Phe Phe Gln Asp His Thr Lys Leu Ile Leu Cys  
530 535 540

Pro Leu Met Ala Ala Val Thr Tyr Ile Asn Glu Lys Arg Asp Phe Gln  
545 550 555 560

Thr Tyr Arg Leu Ser Leu Leu Glu Glu Tyr Gly Cys Cys Lys Glu Leu  
565 570 575

Ala Ser Arg Leu Arg Tyr Ala Arg Thr Met Val Asp Lys Leu Leu Ser  
580 585 590

Ser Arg Ser Ala Ser Asn Arg Leu Lys Ala Ser  
595 600

<210> 26  
<211> 15  
<212> PRT  
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<220>  
<223> Synthetic

<220>  
<221> MISC\_FEATURE  
<222> (3)..(6)  
<223> Xaa = any amino acid

<220>  
<221> MOD\_RES  
<222> (7)..(7)  
<223> PHOSPHORYLATION

<220>  
<221> MISC\_FEATURE  
<222> (9)..(12)  
<223> Xaa = any amino acid

<400> 26

Met Ala Xaa Xaa Xaa Xaa Thr Pro Xaa Xaa Xaa Xaa Ala Lys Lys  
1 5 10 15

<210> 27  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
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<223> Xaa = any amino acid

<220>  
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<223> PHOSPHORYLATION

<220>  
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<222> (9)..(12)  
<223> Xaa = any amino acid

<400> 27

Met	Ala	Xaa	Xaa	Xaa	Xaa	Ser	Pro	Xaa	Xaa	Xaa	Xaa	Ala	Lys	Lys
1				5					10				15	

<210> 28  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> synthetic

<220>  
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<222> (3)..(6)  
<223> Xaa = any amino acid

<220>  
<221> MOD\_RES  
<222> (8)..(8)  
<223> PHOSPHORYLATION

<220>  
<221> MISC\_FEATURE  
<222> (9)..(12)  
<223> Xaa = any amino acid

<400> 28

Met	Ala	Xaa	Xaa	Xaa	Xaa	Ser	Thr	Xaa	Xaa	Xaa	Xaa	Ala	Lys	Lys
1				5					10					15

<210> 29  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
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 <221> MISC\_FEATURE  
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 <223> Xaa = any amino acid

<220>  
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 <223> PHOSPHORYLATION

<220>  
 <221> MISC\_FEATURE  
 <222> (9)..(12)  
 <223> Xaa = any amino acid

<400> 29

Met	Ala	Xaa	Xaa	Xaa	Xaa	Ser	Ser	Xaa	Xaa	Xaa	Xaa	Ala	Lys	Lys
1				5					10					15

<210> 30  
 <211> 20  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> synthetic

<220>  
 <221> misc\_feature  
 <222> (1)..(1)  
 <223> Xaa can be any naturally occurring amino acid

<220>  
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 <222> (3)..(3)  
 <223> Xaa can be any naturally occurring amino acid

<220>  
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 <222> (7)..(10)

<223> Xaa can be any naturally occurring amino acid

<220>

<221> misc\_feature

<222> (13)..(16)

<223> Xaa can be any naturally occurring amino acid

<400> 30

Xaa	Gly	Xaa	Gly	Gly	Ala	Xaa	Xaa	Xaa	Xaa	Thr	Pro	Xaa	Xaa	Xaa	Xaa
1			5					10						15	

Ala	Lys	Lys	Lys
			20

<210> 31

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

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<222> (1)..(1)

<223> Xaa can be any naturally occurring amino acid

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<223> Xaa can be any naturally occurring amino acid

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<222> (13)..(16)

<223> Xaa can be any naturally occurring amino acid

<400> 31

Xaa	Gly	Xaa	Gly	Gly	Ala	Xaa	Xaa	Xaa	Xaa	Thr	Pro	Xaa	Xaa	Xaa	Xaa
1			5					10						15	

Ala	Lys	Lys	Lys
			20

<210> 32

<211> 20  
<212> PRT  
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<222> (3)..(3)  
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<222> (7)..(10)  
<223> Xaa can be any naturally occurring amino acid

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<222> (12)..(16)  
<223> Xaa can be any naturally occurring amino acid

<400> 32

Xaa Gly Xaa Gly Gly Ala Xaa Xaa Xaa Xaa Thr Xaa Xaa Xaa Xaa Xaa  
1 5 10 15

Ala Lys Lys Lys  
20

<210> 33  
<211> 20  
<212> PRT  
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<220>  
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<222> (3)..(3)  
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 <222> (7)..(10)  
 <223> Xaa can be any naturally occurring amino acid

<220>  
 <221> misc\_feature  
 <222> (12)..(16)  
 <223> Xaa can be any naturally occurring amino acid

<400> 33

Xaa	Gly	Xaa	Gly	Gly	Ala	Xaa	Xaa	Xaa	Xaa	Thr	Xaa	Xaa	Xaa	Xaa	Xaa
1			5					10						15	

Ala	Lys	Lys	Lys
			20

<210> 34  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> synthetic

<400> 34

Met	Ala	Gly	Pro	Met	Gln	Ser	Thr	Pro	Leu	Asn	Gly	Ala	Lys	Lys
1				5					10					15

<210> 35  
 <211> 20  
 <212> PRT  
 <213> Artificial Sequence

<220>  
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<220>  
 <221> misc\_feature  
 <222> (1)..(1)  
 <223> Xaa can be any naturally occurring amino acid

<220>  
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 <222> (3)..(3)  
 <223> Xaa can be any naturally occurring amino acid

<220>  
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 <222> (7)..(11)  
 <223> Xaa can be any naturally occurring amino acid

<220>  
 <221> misc\_feature  
 <222> (13)..(16)  
 <223> Xaa can be any naturally occurring amino acid

<400> 35

Xaa	Gly	Xaa	Gly	Gly	Ala	Xaa	Xaa	Xaa	Xaa	Xaa	Gln	Xaa	Xaa	Xaa	Xaa
1			5					10					15		

Ala	Lys	Lys	Lys
			20

<210> 36  
 <211> 20  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> synthetic

<220>  
 <221> misc\_feature  
 <222> (1)..(1)  
 <223> Xaa can be any naturally occurring amino acid

<220>  
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 <222> (3)..(3)  
 <223> Xaa can be any naturally occurring amino acid

<220>  
 <221> misc\_feature  
 <222> (7)..(10)  
 <223> Xaa can be any naturally occurring amino acid

<220>  
 <221> misc\_feature  
 <222> (12)..(16)  
 <223> Xaa can be any naturally occurring amino acid

<400> 36

Xaa	Gly	Xaa	Gly	Gly	Ala	Xaa	Xaa	Xaa	Xaa	Ser	Xaa	Xaa	Xaa	Xaa	Xaa
1			5					10					15		

Ala	Lys	Lys	Lys
			20

<210> 37  
 <211> 2089



<212> PRT  
 <213> Homo sapiens

<400> 37

Met Glu Asp Thr Gln Ala Ile Asp Trp Asp Val Glu Glu Glu Glu Glu  
 1 5 10 15

Thr Glu Gln Ser Ser Glu Ser Leu Arg Cys Asn Val Glu Pro Val Gly  
 20 25 30

Arg Leu His Ile Phe Ser Gly Ala His Gly Pro Glu Lys Asp Phe Pro  
 35 40 45

Leu His Leu Gly Lys Asn Val Val Gly Arg Met Pro Asp Cys Ser Val  
 50 55 60

Ala Leu Pro Phe Pro Ser Ile Ser Lys Gln His Ala Glu Ile Glu Ile  
 65 70 75 80

Leu Ala Trp Asp Lys Ala Pro Ile Leu Arg Asp Cys Gly Ser Leu Asn  
 85 90 95

Gly Thr Gln Ile Leu Arg Pro Pro Lys Val Leu Ser Pro Gly Val Ser  
 100 105 110

His Arg Leu Arg Asp Gln Glu Leu Ile Leu Phe Ala Asp Leu Leu Cys  
 115 120 125

Gln Tyr His Arg Leu Asp Val Ser Leu Pro Phe Val Ser Arg Gly Pro  
 130 135 140

Leu Thr Val Glu Glu Thr Pro Arg Val Gln Gly Glu Thr Gln Pro Gln  
 145 150 155 160

Arg Leu Leu Leu Ala Glu Asp Ser Glu Glu Glu Val Asp Phe Leu Ser  
 165 170 175

Glu Arg Arg Met Val Lys Lys Ser Arg Thr Thr Ser Ser Ser Val Ile  
 180 185 190

Val Pro Glu Ser Asp Glu Glu Gly His Ser Pro Val Leu Gly Gly Leu  
 195 200 205

Gly Pro Pro Phe Ala Phe Asn Leu Asn Ser Asp Thr Asp Val Glu Glu  
 210 215 220

Gly Gln Gln Pro Ala Thr Glu Glu Ala Ser Ser Ala Ala Arg Arg Gly  
 225 230 235 240

Ala Thr Val Glu Ala Lys Gln Ser Glu Ala Glu Val Val Thr Glu Ile  
 245 250 255

Gln Leu Glu Lys Asp Gln Pro Leu Val Lys Glu Arg Asp Asn Asp Thr  
 260 265 270

Lys Val Lys Arg Gly Ala Gly Asn Gly Val Val Pro Ala Gly Val Ile  
 275 280 285

Leu Glu Arg Ser Gln Pro Pro Gly Glu Asp Ser Asp Thr Asp Val Asp  
 290 295 300

Asp Asp Ser Arg Pro Pro Gly Arg Pro Ala Glu Val His Leu Glu Arg  
 305 310 315 320

Ala Gln Pro Phe Gly Phe Ile Asp Ser Asp Thr Asp Ala Glu Glu Glu  
 325 330 335

Arg Ile Pro Ala Thr Pro Val Val Ile Pro Met Lys Lys Arg Lys Ile  
 340 345 350

Phe His Gly Val Gly Thr Arg Gly Pro Gly Ala Pro Gly Leu Ala His  
 355 360 365

Leu Gln Glu Ser Gln Ala Gly Ser Asp Thr Asp Val Glu Glu Gly Lys  
 370 375 380

Ala Pro Gln Ala Val Pro Leu Glu Lys Ser Gln Ala Ser Met Val Ile  
 385 390 395 400

Asn Ser Asp Thr Asp Asp Glu Glu Glu Val Ser Ala Ala Leu Thr Leu  
 405 410 415

Ala His Leu Lys Glu Ser Gln Pro Ala Ile Trp Asn Arg Asp Ala Glu  
 420 425 430

Glu Asp Met Pro Gln Arg Val Val Leu Leu Gln Arg Ser Gln Thr Thr

435		440		445
Thr Glu Arg Asp Ser Asp Thr Asp Val Glu Glu Glu Glu Leu Pro Val				
450		455		460
Glu Asn Arg Glu Ala Val Leu Lys Asp His Thr Lys Ile Arg Ala Leu				
465		470		475
				480
Val Arg Ala His Ser Glu Lys Asp Gln Pro Pro Phe Gly Asp Ser Asp				
		485		490
				495
Asp Ser Val Glu Ala Asp Lys Ser Ser Pro Gly Ile His Leu Glu Arg				
		500		505
				510
Ser Gln Ala Ser Thr Thr Val Asp Ile Asn Thr Gln Val Glu Lys Glu				
		515		520
				525
Val Pro Pro Gly Ser Ala Ile Met His Ile Lys Lys His Gln Val Ser				
		530		535
				540
Val Glu Gly Thr Asn Gln Thr Asp Val Lys Ala Val Gly Gly Pro Ala				
545		550		555
				560
Lys Leu Leu Val Val Ser Leu Glu Glu Ala Trp Pro Leu His Gly Asp				
		565		570
				575
Cys Glu Thr Asp Ala Glu Glu Gly Thr Ser Leu Thr Ala Ser Val Val				
		580		585
				590
Ala Asp Val Arg Lys Ser Gln Leu Pro Ala Glu Gly Asp Ala Gly Ala				
		595		600
				605
Glu Trp Ala Ala Ala Val Leu Lys Gln Glu Arg Ala His Glu Val Gly				
		610		615
				620
Ala Gln Gly Gly Pro Pro Val Ala Gln Val Glu Gln Asp Leu Pro Ile				
625		630		635
				640
Ser Arg Glu Asn Leu Thr Asp Leu Val Val Asp Thr Asp Thr Leu Gly				
		645		650
				655
Glu Ser Thr Gln Pro Gln Arg Glu Gly Ala Gln Val Pro Thr Gly Arg				
		660		665
				670

Glu Arg Glu Gln His Val Gly Gly Thr Lys Asp Ser Glu Asp Asn Tyr  
675 680 685

Gly Asp Ser Glu Asp Leu Asp Leu Gln Ala Thr Gln Cys Phe Leu Glu  
690 695 700

Asn Gln Gly Leu Glu Ala Val Gln Ser Met Glu Asp Glu Pro Thr Gln  
705 710 715 720

Ala Phe Met Leu Thr Pro Pro Gln Glu Leu Gly Pro Ser His Cys Ser  
725 730 735

Phe Gln Thr Thr Gly Thr Leu Asp Glu Pro Trp Glu Val Leu Ala Thr  
740 745 750

Gln Pro Phe Cys Leu Arg Glu Ser Glu Asp Ser Glu Thr Gln Pro Phe  
755 760 765

Asp Thr His Leu Glu Ala Tyr Gly Pro Cys Leu Ser Pro Pro Arg Ala  
770 775 780

Ile Pro Gly Asp Gln His Pro Glu Ser Pro Val His Thr Glu Pro Met  
785 790 795 800

Gly Ile Gln Gly Arg Gly Arg Gln Thr Val Asp Lys Val Met Gly Ile  
805 810 815

Pro Lys Glu Thr Ala Glu Arg Val Gly Pro Glu Arg Gly Pro Leu Glu  
820 825 830

Arg Glu Thr Glu Lys Leu Leu Pro Glu Arg Gln Thr Asp Val Thr Gly  
835 840 845

Glu Glu Glu Leu Thr Lys Gly Lys Gln Asp Arg Glu Gln Lys Gln Leu  
850 855 860

Leu Ala Arg Asp Thr Gln Arg Gln Glu Ser Asp Lys Asn Gly Glu Ser  
865 870 875 880

Ala Ser Pro Glu Arg Asp Arg Glu Ser Leu Lys Val Glu Ile Glu Thr  
885 890 895

Ser Glu Glu Ile Gln Glu Lys Gln Val Gln Lys Gln Thr Leu Pro Ser  
900 905 910

Lys Ala Phe Glu Arg Glu Val Glu Arg Pro Val Ala Asn Arg Glu Cys  
915 920 925

Asp Pro Ala Glu Leu Glu Glu Lys Val Pro Lys Val Ile Leu Glu Arg  
930 935 940

Asp Thr Gln Arg Gly Glu Pro Glu Gly Gly Ser Gln Asp Gln Lys Gly  
945 950 955 960

Gln Ala Ser Ser Pro Thr Pro Glu Pro Gly Val Gly Ala Gly Asp Leu  
965 970 975

Pro Gly Pro Thr Ser Ala Pro Val Pro Ser Gly Ser Gln Ser Gly Gly  
980 985 990

Arg Gly Ser Pro Val Ser Pro Arg Arg His Gln Lys Gly Leu Leu Asn  
995 1000 1005

Cys Lys Met Pro Pro Ala Glu Lys Ala Ser Arg Ile Arg Ala Ala  
1010 1015 1020

Glu Lys Val Ser Arg Gly Asp Gln Glu Ser Pro Asp Ala Cys Leu  
1025 1030 1035

Pro Pro Ala Val Pro Glu Ala Pro Ala Pro Pro Gln Lys Pro Leu  
1040 1045 1050

Asn Ser Gln Ser Gln Lys His Leu Ala Pro Pro Pro Leu Leu Ser  
1055 1060 1065

Pro Leu Leu Pro Ser Ile Lys Pro Thr Val Arg Lys Thr Arg Gln  
1070 1075 1080

Asp Gly Ser Gln Glu Ala Pro Glu Ala Pro Leu Ser Ser Glu Leu  
1085 1090 1095

Glu Pro Phe His Pro Lys Pro Lys Ile Arg Thr Arg Lys Ser Ser  
1100 1105 1110

Arg Met	Thr Pro Phe Pro	Ala Thr Ser Ala Ala	Pro Glu Pro His
1115		1120	1125
Pro Ser	Thr Ser Thr Ala	Gln Pro Val Thr Pro	Lys Pro Thr Ser
1130		1135	1140
Gln Ala	Thr Arg Ser Arg	Thr Asn Arg Ser Ser	Val Lys Thr Pro
1145		1150	1155
Glu Pro	Val Val Pro Thr	Ala Pro Glu Leu Gln	Pro Ser Thr Ser
1160		1165	1170
Thr Asp	Gln Pro Val Thr	Ser Glu Pro Thr Ser	Gln Val Thr Arg
1175		1180	1185
Gly Arg	Lys Ser Arg Ser	Ser Val Lys Thr Pro	Glu Thr Val Val
1190		1195	1200
Pro Thr	Ala Leu Glu Leu	Gln Pro Ser Thr Ser	Thr Asp Arg Pro
1205		1210	1215
Val Thr	Ser Glu Pro Thr	Ser Gln Ala Thr Arg	Gly Arg Lys Asn
1220		1225	1230
Arg Ser	Ser Val Lys Thr	Pro Glu Pro Val Val	Pro Thr Ala Pro
1235		1240	1245
Glu Leu	Gln Pro Ser Thr	Ser Thr Asp Gln Pro	Val Thr Ser Glu
1250		1255	1260
Pro Thr	Tyr Gln Ala Thr	Arg Gly Arg Lys Asn	Arg Ser Ser Val
1265		1270	1275
Lys Thr	Pro Glu Pro Val	Val Pro Thr Ala Pro	Glu Leu Arg Pro
1280		1285	1290
Ser Thr	Ser Thr Asp Arg	Pro Val Thr Pro Lys	Pro Thr Ser Arg
1295		1300	1305
Thr Thr	Arg Ser Arg Thr	Asn Met Ser Ser Val	Lys Thr Pro Glu
1310		1315	1320
Thr Val	Val Pro Thr Ala	Pro Glu Leu Gln Ile	Ser Thr Ser Thr

1325		1330		1335
Asp Gln Pro Val Thr Pro Lys	Pro Thr Ser Arg Thr Thr Arg Ser			
1340	1345	1350		
Arg Thr Asn Met Ser Ser Val	Lys Asn Pro Glu Ser Thr Val Pro			
1355	1360	1365		
Ile Ala Pro Glu Leu Pro Pro	Ser Thr Ser Thr Glu Gln Pro Val			
1370	1375	1380		
Thr Pro Glu Pro Thr Ser Arg	Ala Thr Arg Gly Arg Lys Asn Arg			
1385	1390	1395		
Ser Ser Gly Lys Thr Pro Glu	Thr Leu Val Pro Thr Ala Pro Lys			
1400	1405	1410		
Leu Glu Pro Ser Thr Ser Thr	Asp Gln Pro Val Thr Pro Glu Pro			
1415	1420	1425		
Thr Ser Gln Ala Thr Arg Gly	Arg Thr Asn Arg Ser Ser Val Lys			
1430	1435	1440		
Thr Pro Glu Thr Val Val Pro	Thr Ala Pro Glu Leu Gln Pro Ser			
1445	1450	1455		
Thr Ser Thr Asp Gln Pro Val	Thr Pro Glu Pro Thr Ser Gln Ala			
1460	1465	1470		
Thr Arg Gly Arg Thr Asp Arg	Ser Ser Val Lys Thr Pro Glu Thr			
1475	1480	1485		
Val Val Pro Thr Ala Pro Glu	Leu Gln Ala Ser Ala Ser Thr Asp			
1490	1495	1500		
Gln Pro Val Thr Ser Glu Pro	Thr Ser Arg Thr Thr Arg Gly Arg			
1505	1510	1515		
Lys Asn Arg Ser Ser Val Lys	Thr Pro Glu Thr Val Val Pro Ala			
1520	1525	1530		
Ala Pro Glu Leu Gln Pro Pro	Thr Ser Thr Asp Arg Pro Val Thr			
1535	1540	1545		

Pro Glu	Pro Thr Ser Arg	Ala	Thr Arg Gly Arg	Thr	Asn Arg Ser
1550		1555		1560	
Ser Val	Lys Thr Pro Glu	Ser	Ile Val Pro Ile	Ala	Pro Glu Leu
1565		1570		1575	
Gln Pro	Ser Thr Ser Arg	Asn	Gln Leu Val Thr	Pro	Glu Pro Thr
1580		1585		1590	
Ser Arg	Ala Thr Arg Cys	Arg	Thr Asn Arg Ser	Ser	Val Lys Thr
1595		1600		1605	
Pro Glu	Pro Val Val Pro	Thr	Ala Pro Glu Pro	His	Pro Thr Thr
1610		1615		1620	
Ser Thr	Asp Gln Pro Val	Thr	Pro Lys Leu Thr	Ser	Arg Ala Thr
1625		1630		1635	
Arg Arg	Lys Thr Asn Arg	Ser	Ser Val Lys Thr	Pro	Lys Pro Val
1640		1645		1650	
Glu Pro	Ala Ala Ser Asp	Leu	Glu Pro Phe Thr	Pro	Thr Asp Gln
1655		1660		1665	
Ser Val	Thr Pro Glu Ala	Ile	Ala Gln Gly Gly	Gln	Ser Lys Thr
1670		1675		1680	
Leu Arg	Ser Ser Thr Val	Arg	Ala Met Pro Val	Pro	Thr Thr Pro
1685		1690		1695	
Glu Phe	Gln Ser Pro Val	Thr	Thr Asp Gln Pro	Ile	Ser Pro Glu
1700		1705		1710	
Pro Ile	Thr Gln Pro Ser	Cys	Ile Lys Arg Gln	Arg	Ala Ala Gly
1715		1720		1725	
Asn Pro	Gly Ser Leu Ala	Ala	Pro Ile Asp His	Lys	Pro Cys Ser
1730		1735		1740	
Ala Pro	Leu Glu Pro Lys	Ser	Gln Ala Ser Arg	Asn	Gln Arg Trp
1745		1750		1755	



Gly	Ala	Val	Arg	Ala	Ala	Glu	Ser	Leu	Thr	Ala	Ile	Pro	Glu	Pro
1760						1765					1770			
Ala	Ser	Pro	Gln	Leu	Leu	Glu	Thr	Pro	Ile	His	Ala	Ser	Gln	Ile
1775						1780					1785			
Gln	Lys	Val	Glu	Pro	Ala	Gly	Arg	Ser	Arg	Phe	Thr	Pro	Glu	Leu
1790						1795					1800			
Gln	Pro	Lys	Ala	Ser	Gln	Ser	Arg	Lys	Arg	Ser	Leu	Ala	Thr	Met
1805						1810					1815			
Asp	Ser	Pro	Pro	His	Gln	Lys	Gln	Pro	Gln	Arg	Gly	Glu	Val	Ser
1820						1825					1830			
Gln	Lys	Thr	Val	Ile	Ile	Lys	Glu	Glu	Glu	Glu	Asp	Thr	Ala	Glu
1835						1840					1845			
Lys	Pro	Gly	Lys	Glu	Glu	Asp	Val	Val	Thr	Pro	Lys	Pro	Gly	Lys
1850						1855					1860			
Arg	Lys	Arg	Asp	Gln	Ala	Glu	Glu	Glu	Pro	Asn	Arg	Ile	Pro	Ser
1865						1870					1875			
Arg	Ser	Leu	Arg	Arg	Thr	Lys	Leu	Asn	Gln	Glu	Ser	Thr	Ala	Pro
1880						1885					1890			
Lys	Val	Leu	Phe	Thr	Gly	Val	Val	Asp	Ala	Arg	Gly	Glu	Arg	Ala
1895						1900					1905			
Val	Leu	Ala	Leu	Gly	Gly	Ser	Leu	Ala	Gly	Ser	Ala	Ala	Glu	Ala
1910						1915					1920			
Ser	His	Leu	Val	Thr	Asp	Arg	Ile	Arg	Arg	Thr	Val	Lys	Phe	Leu
1925						1930					1935			
Cys	Ala	Leu	Gly	Arg	Gly	Ile	Pro	Ile	Leu	Ser	Leu	Asp	Trp	Leu
1940						1945					1950			
His	Gln	Ser	Arg	Lys	Ala	Gly	Phe	Phe	Leu	Pro	Pro	Asp	Glu	Tyr
1955						1960					1965			

Val Val Thr Asp Pro Glu Gln Glu Lys Asn Phe Gly Phe Ser Leu  
1970 1975 1980

Gln Asp Ala Leu Ser Arg Ala Arg Glu Arg Arg Leu Leu Glu Gly  
1985 1990 1995

Tyr Glu Ile Tyr Val Thr Pro Gly Val Gln Pro Pro Pro Pro Gln  
2000 2005 2010

Met Gly Glu Ile Ile Ser Cys Cys Gly Gly Thr Tyr Leu Pro Ser  
2015 2020 2025

Met Pro Arg Ser Tyr Lys Pro Gln Arg Val Val Ile Thr Cys Pro  
2030 2035 2040

Gln Asp Phe Pro His Cys Ser Ile Pro Leu Arg Val Gly Leu Pro  
2045 2050 2055

Leu Leu Ser Pro Glu Phe Leu Leu Thr Gly Val Leu Lys Gln Glu  
2060 2065 2070

Ala Lys Pro Glu Ala Phe Val Leu Ser Pro Leu Glu Met Ser Ser  
2075 2080 2085

Thr

<210> 38  
<211> 1972  
<212> PRT  
<213> Homo sapiens

<400> 38

Met Asp Pro Thr Gly Ser Gln Leu Asp Ser Asp Phe Ser Gln Gln Asp  
1 5 10 15

Thr Pro Cys Leu Ile Ile Glu Asp Ser Gln Pro Glu Ser Gln Val Leu  
20 25 30

Glu Asp Asp Ser Gly Ser His Phe Ser Met Leu Ser Arg His Leu Pro  
35 40 45

Asn Leu Gln Thr His Lys Glu Asn Pro Val Leu Asp Val Val Ser Asn  
50 55 60

Pro Glu Gln Thr Ala Gly Glu Glu Arg Gly Asp Gly Asn Ser Gly Phe  
65 70 75 80

Asn Glu His Leu Lys Glu Asn Lys Val Ala Asp Pro Val Asp Ser Ser  
85 90 95

Asn Leu Asp Thr Cys Gly Ser Ile Ser Gln Val Ile Glu Gln Leu Pro  
100 105 110

Gln Pro Asn Arg Thr Ser Ser Val Leu Gly Met Ser Val Glu Ser Ala  
115 120 125

Pro Ala Val Glu Glu Glu Lys Gly Glu Glu Leu Glu Gln Lys Glu Lys  
130 135 140

Glu Lys Glu Glu Asp Thr Ser Gly Asn Thr Thr His Ser Leu Gly Ala  
145 150 155 160

Glu Asp Thr Ala Ser Ser Gln Leu Gly Phe Gly Val Leu Glu Leu Ser  
165 170 175

Gln Ser Gln Asp Val Glu Glu Asn Thr Val Pro Tyr Glu Val Asp Lys  
180 185 190

Glu Gln Leu Gln Ser Val Thr Thr Asn Ser Gly Tyr Thr Arg Leu Ser  
195 200 205

Asp Val Asp Ala Asn Thr Ala Ile Lys His Glu Glu Gln Ser Asn Glu  
210 215 220

Asp Ile Pro Ile Ala Glu Gln Ser Ser Lys Asp Ile Pro Val Thr Ala  
225 230 235 240

Gln Pro Ser Lys Asp Val His Val Val Lys Glu Gln Asn Pro Pro Pro  
245 250 255

Ala Arg Ser Glu Asp Met Pro Phe Ser Pro Lys Ala Ser Val Ala Ala  
260 265 270

Met Glu Ala Lys Glu Gln Leu Ser Ala Gln Glu Leu Met Glu Ser Gly  
275 280 285

Leu Gln Ile Gln Lys Ser Pro Glu Pro Glu Val Leu Ser Thr Gln Glu  
 290 295 300

Asp Leu Phe Asp Gln Ser Asn Lys Thr Val Ser Ser Asp Gly Cys Ser  
 305 310 315 320

Thr Pro Ser Arg Glu Glu Gly Gly Cys Ser Leu Ala Ser Thr Pro Ala  
 325 330 335

Thr Thr Leu His Leu Leu Gln Leu Ser Gly Gln Arg Ser Leu Val Gln  
 340 345 350

Asp Ser Leu Ser Thr Asn Ser Ser Asp Leu Val Ala Pro Ser Pro Asp  
 355 360 365

Ala Phe Arg Ser Thr Pro Phe Ile Val Pro Ser Ser Pro Thr Glu Gln  
 370 375 380

Glu Gly Arg Gln Asp Lys Pro Met Asp Thr Ser Val Leu Ser Glu Glu  
 385 390 395 400

Gly Gly Glu Pro Phe Gln Lys Lys Leu Gln Ser Gly Glu Pro Val Glu  
 405 410 415

Leu Glu Asn Pro Pro Leu Leu Pro Glu Ser Thr Val Ser Pro Gln Ala  
 420 425 430

Ser Thr Pro Ile Ser Gln Ser Thr Pro Val Phe Pro Pro Gly Ser Leu  
 435 440 445

Pro Ile Pro Ser Gln Pro Gln Phe Ser His Asp Ile Phe Ile Pro Ser  
 450 455 460

Pro Ser Leu Glu Glu Gln Ser Asn Asp Gly Lys Lys Asp Gly Asp Met  
 465 470 475 480

His Ser Ser Ser Leu Thr Val Glu Cys Ser Lys Thr Ser Glu Ile Glu  
 485 490 495

Pro Lys Asn Ser Pro Glu Asp Leu Gly Leu Ser Leu Thr Gly Asp Ser  
 500 505 510

Cys Lys Leu Met Leu Ser Thr Ser Glu Tyr Ser Gln Ser Pro Lys Met  
515 520 525

Glu Ser Leu Ser Ser His Arg Ile Asp Glu Asp Gly Glu Asn Thr Gln  
530 535 540

Ile Glu Asp Thr Glu Pro Met Ser Pro Val Leu Asn Ser Lys Phe Val  
545 550 555 560

Pro Ala Glu Asn Asp Ser Ile Leu Met Asn Pro Ala Gln Asp Gly Glu  
565 570 575

Val Gln Leu Ser Gln Asn Asp Asp Lys Thr Lys Gly Asp Asp Thr Asp  
580 585 590

Thr Arg Asp Asp Ile Ser Ile Leu Ala Thr Gly Cys Lys Gly Arg Glu  
595 600 605

Glu Thr Val Ala Glu Asp Val Cys Ile Asp Leu Thr Cys Asp Ser Gly  
610 615 620

Ser Gln Ala Val Pro Ser Pro Ala Thr Arg Ser Glu Ala Leu Ser Ser  
625 630 635 640

Val Leu Asp Gln Glu Glu Ala Met Glu Ile Lys Glu His His Pro Glu  
645 650 655

Glu Gly Ser Ser Gly Ser Glu Val Glu Glu Ile Pro Glu Thr Pro Cys  
660 665 670

Glu Ser Gln Gly Glu Glu Leu Lys Glu Glu Asn Met Glu Ser Val Pro  
675 680 685

Leu His Leu Ser Leu Thr Glu Thr Gln Ser Gln Gly Leu Cys Leu Gln  
690 695 700

Lys Glu Met Pro Lys Lys Glu Cys Ser Glu Ala Met Glu Val Glu Thr  
705 710 715 720

Ser Val Ile Ser Ile Asp Ser Pro Gln Lys Leu Ala Ile Leu Asp Gln  
725 730 735

Glu Leu Glu His Lys Glu Gln Glu Ala Trp Glu Glu Ala Thr Ser Glu

740								745							750
Asp	Ser	Ser	Val	Val	Ile	Val	Asp	Val	Lys	Glu	Pro	Ser	Pro	Arg	Val
	755						760					765			
Asp	Val	Ser	Cys	Glu	Pro	Leu	Glu	Gly	Val	Glu	Lys	Cys	Ser	Asp	Ser
	770					775					780				
Gln	Ser	Trp	Glu	Asp	Ile	Ala	Pro	Glu	Ile	Glu	Pro	Cys	Ala	Glu	Asn
785					790					795					800
Arg	Leu	Asp	Thr	Lys	Glu	Glu	Lys	Ser	Val	Glu	Tyr	Glu	Gly	Asp	Leu
				805					810					815	
Lys	Ser	Gly	Thr	Ala	Glu	Thr	Glu	Pro	Val	Glu	Gln	Asp	Ser	Ser	Gln
			820					825					830		
Pro	Ser	Leu	Pro	Leu	Val	Arg	Ala	Asp	Asp	Pro	Leu	Arg	Leu	Asp	Gln
		835					840					845			
Glu	Leu	Gln	Gln	Pro	Gln	Thr	Gln	Glu	Lys	Thr	Ser	Asn	Ser	Leu	Thr
	850					855					860				
Glu	Asp	Ser	Lys	Met	Ala	Asn	Ala	Lys	Gln	Leu	Ser	Ser	Asp	Ala	Glu
865					870					875					880
Ala	Gln	Lys	Leu	Gly	Lys	Pro	Ser	Ala	His	Ala	Ser	Gln	Ser	Phe	Cys
				885					890					895	
Glu	Ser	Ser	Ser	Glu	Thr	Pro	Phe	His	Phe	Thr	Leu	Pro	Lys	Glu	Gly
			900					905					910		
Asp	Ile	Ile	Pro	Pro	Leu	Thr	Gly	Ala	Thr	Pro	Pro	Leu	Ile	Gly	His
	915						920					925			
Leu	Lys	Leu	Glu	Pro	Lys	Arg	His	Ser	Thr	Pro	Ile	Gly	Ile	Ser	Asn
	930					935					940				
Tyr	Pro	Glu	Ser	Thr	Ile	Ala	Thr	Ser	Asp	Val	Met	Ser	Glu	Ser	Met
945					950					955					960
Val	Glu	Thr	His	Asp	Pro	Ile	Leu	Gly	Ser	Gly	Lys	Gly	Asp	Ser	Gly
				965					970					975	

Ala Ala Pro Asp Val Asp Asp Lys Leu Cys Leu Arg Met Lys Leu Val  
980 985 990

Ser Pro Glu Thr Glu Ala Ser Glu Glu Ser Leu Gln Phe Asn Leu Glu  
995 1000 1005

Lys Pro Ala Thr Gly Glu Arg Lys Asn Gly Ser Thr Ala Val Ala  
1010 1015 1020

Glu Ser Val Ala Ser Pro Gln Lys Thr Met Ser Val Leu Ser Cys  
1025 1030 1035

Ile Cys Glu Ala Arg Gln Glu Asn Glu Ala Arg Ser Glu Asp Pro  
1040 1045 1050

Pro Thr Thr Pro Ile Arg Gly Asn Leu Leu His Phe Pro Ser Ser  
1055 1060 1065

Gln Gly Glu Glu Glu Lys Glu Lys Leu Glu Gly Asp His Thr Ile  
1070 1075 1080

Arg Gln Ser Gln Gln Pro Met Lys Pro Ile Ser Pro Val Lys Asp  
1085 1090 1095

Pro Val Ser Pro Ala Ser Gln Lys Met Val Ile Gln Gly Pro Ser  
1100 1105 1110

Ser Pro Gln Gly Glu Ala Met Val Thr Asp Val Leu Glu Asp Gln  
1115 1120 1125

Lys Glu Gly Arg Ser Thr Asn Lys Glu Asn Pro Ser Lys Ala Leu  
1130 1135 1140

Ile Glu Arg Pro Ser Gln Asn Asn Ile Gly Ile Gln Thr Met Glu  
1145 1150 1155

Cys Ser Leu Arg Val Pro Glu Thr Val Ser Ala Ala Thr Gln Thr  
1160 1165 1170

Ile Lys Asn Val Cys Glu Gln Gly Thr Ser Thr Val Asp Gln Asn  
1175 1180 1185

Phe Gly	Lys Gln Asp Ala Thr	Val Gln Thr Glu Arg	Gly Ser Gly
1190	1195	1200	
Glu Lys	Pro Val Ser Ala Pro	Gly Asp Asp Thr Glu	Ser Leu His
1205	1210	1215	
Ser Gln	Gly Glu Glu Glu Phe	Asp Met Pro Gln Pro	Pro His Gly
1220	1225	1230	
His Val	Leu His Arg His Met	Arg Thr Ile Arg Glu	Val Arg Thr
1235	1240	1245	
Leu Val	Thr Arg Val Ile Thr	Asp Val Tyr Tyr Val	Asp Gly Thr
1250	1255	1260	
Glu Val	Glu Arg Lys Val Thr	Glu Glu Thr Glu Glu	Pro Ile Val
1265	1270	1275	
Glu Cys	Gln Glu Cys Glu Thr	Glu Val Ser Pro Ser	Gln Thr Gly
1280	1285	1290	
Gly Ser	Ser Gly Asp Leu Gly	Asp Ile Ser Ser Phe	Ser Ser Lys
1295	1300	1305	
Ala Ser	Ser Leu His Arg Thr	Ser Ser Gly Thr Ser	Leu Ser Ala
1310	1315	1320	
Met His	Ser Ser Gly Ser Ser	Gly Lys Gly Ala Gly	Pro Leu Arg
1325	1330	1335	
Gly Lys	Thr Ser Gly Thr Glu	Pro Ala Asp Phe Ala	Leu Pro Ser
1340	1345	1350	
Ser Arg	Gly Gly Pro Gly Lys	Leu Ser Pro Arg Lys	Gly Val Ser
1355	1360	1365	
Gln Thr	Gly Thr Pro Val Cys	Glu Glu Asp Gly Asp	Ala Gly Leu
1370	1375	1380	
Gly Ile	Arg Gln Gly Gly Lys	Ala Pro Val Thr Pro	Arg Gly Arg
1385	1390	1395	



Gly	Arg	Arg	Gly	Arg	Pro	Pro	Ser	Arg	Thr	Thr	Gly	Thr	Arg	Glu
1400						1405					1410			
Thr	Ala	Val	Pro	Gly	Pro	Leu	Gly	Ile	Glu	Asp	Ile	Ser	Pro	Asn
1415						1420					1425			
Leu	Ser	Pro	Asp	Asp	Lys	Ser	Phe	Ser	Arg	Val	Val	Pro	Arg	Val
1430						1435					1440			
Pro	Asp	Ser	Thr	Arg	Arg	Thr	Asp	Val	Gly	Ala	Gly	Ala	Leu	Arg
1445						1450					1455			
Arg	Ser	Asp	Ser	Pro	Glu	Ile	Pro	Phe	Gln	Ala	Ala	Ala	Gly	Pro
1460						1465					1470			
Ser	Asp	Gly	Leu	Asp	Ala	Ser	Ser	Pro	Gly	Asn	Ser	Phe	Val	Gly
1475						1480					1485			
Leu	Arg	Val	Val	Ala	Lys	Trp	Ser	Ser	Asn	Gly	Tyr	Phe	Tyr	Ser
1490						1495					1500			
Gly	Lys	Ile	Thr	Arg	Asp	Val	Gly	Ala	Gly	Lys	Tyr	Lys	Leu	Leu
1505						1510					1515			
Phe	Asp	Asp	Gly	Tyr	Glu	Cys	Asp	Val	Leu	Gly	Lys	Asp	Ile	Leu
1520						1525					1530			
Leu	Cys	Asp	Pro	Ile	Pro	Leu	Asp	Thr	Glu	Val	Thr	Ala	Leu	Ser
1535						1540					1545			
Glu	Asp	Glu	Tyr	Phe	Ser	Ala	Gly	Val	Val	Lys	Gly	His	Arg	Lys
1550						1555					1560			
Glu	Ser	Gly	Glu	Leu	Tyr	Tyr	Ser	Ile	Glu	Lys	Glu	Gly	Gln	Arg
1565						1570					1575			
Lys	Trp	Tyr	Lys	Arg	Met	Ala	Val	Ile	Leu	Ser	Leu	Glu	Gln	Gly
1580						1585					1590			
Asn	Arg	Leu	Arg	Glu	Gln	Tyr	Gly	Leu	Gly	Pro	Tyr	Glu	Ala	Val
1595						1600					1605			
Thr	Pro	Leu	Thr	Lys	Ala	Ala	Asp	Ile	Ser	Leu	Asp	Asn	Leu	Val



Ser Cys His Ala Asn Gln Leu Gln Asn Tyr Arg Asn Tyr Leu Leu  
 1835 1840 1845

Pro Ala Gly Tyr Ser Leu Glu Glu Gln Arg Ile Leu Asp Trp Gln  
 1850 1855 1860

Pro Arg Glu Asn Pro Phe Gln Asn Leu Lys Val Leu Leu Val Ser  
 1865 1870 1875

Asp Gln Gln Gln Asn Phe Leu Glu Leu Trp Ser Glu Ile Leu Met  
 1880 1885 1890

Thr Gly Gly Ala Ala Ser Val Lys Gln His His Ser Ser Ala His  
 1895 1900 1905

Asn Lys Asp Ile Ala Leu Gly Val Phe Asp Val Val Val Thr Asp  
 1910 1915 1920

Pro Ser Cys Pro Ala Ser Val Leu Lys Cys Ala Glu Ala Leu Gln  
 1925 1930 1935

Leu Pro Val Val Ser Gln Glu Trp Val Ile Gln Cys Leu Ile Val  
 1940 1945 1950

Gly Glu Arg Ile Gly Phe Lys Gln His Pro Lys Tyr Lys His Asp  
 1955 1960 1965

Tyr Val Ser His  
 1970

<210> 39  
 <211> 1309  
 <212> PRT  
 <213> *Saccharomyces cerevisiae*

<400> 39

Met Ser Gly Gln Leu Val Gln Trp Lys Ser Ser Pro Asp Arg Val Thr  
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Gln Ser Ala Ile Lys Glu Ala Leu His Ser Pro Leu Ala Asp Gly Asp  
 20 25 30

Met Asn Glu Met Asn Val Pro Val Asp Pro Leu Glu Asn Lys Val Asn  
 35 40 45

Ser Thr Asn Ile Ile Glu Gly Ser Pro Lys Ala Asn Pro Asn Pro Val  
 50 55 60

Lys Phe Met Asn Thr Ser Glu Ile Phe Gln Lys Ser Leu Gly Leu Leu  
 65 70 75 80

Asp Glu Ser Pro Arg His Asp Asp Glu Leu Asn Ile Glu Val Gly Asp  
 85 90 95

Asn Asp Arg Pro Asn Ala Asn Ile Leu His Asn Glu Arg Thr Pro Asp  
 100 105 110

Leu Asp Arg Ile Ala Asn Phe Phe Lys Ser Asn Arg Thr Pro Gly Lys  
 115 120 125

Glu Asn Leu Leu Thr Lys Tyr Gln Ser Ser Asp Leu Glu Asp Thr Pro  
 130 135 140

Leu Met Leu Arg Lys Lys Met Thr Phe Gln Thr Pro Thr Asp Pro Leu  
 145 150 155 160

Glu Gln Lys Thr Phe Lys Lys Leu Lys Ser Asp Thr Gly Phe Cys Tyr  
 165 170 175

Tyr Gly Glu Gln Asn Asp Gly Glu Glu Asn Ala Ser Leu Glu Val Thr  
 180 185 190

Glu Ala Asp Ala Thr Phe Val Gln Met Ala Glu Arg Ser Ala Asp Asn  
 195 200 205

Tyr Asp Cys Ala Leu Glu Gly Ile Val Thr Pro Lys Arg Tyr Lys Asp  
 210 215 220

Glu Leu Ser Lys Ser Gly Gly Met Gln Asp Glu Arg Val Gln Lys Thr  
 225 230 235 240

Gln Ile Met Ile Ser Ala Glu Ser Pro Asn Ser Ile Ser Ser Tyr Asp  
 245 250 255

Lys Asn Lys Ile Thr Gly Asn Gly Arg Thr Thr Arg Asn Val Asn Lys

[illegible]

Lys Asn Thr Met Ser Lys Pro Ser Asn Ser Ser Pro Ile Pro Lys Glu  
500 505 510

Lys Asp Thr Phe Asn Ile His Glu Arg Glu Val Glu Thr Asn Asn Val  
515 520 525

Phe Ser Asn Asp Ile Gln Asn Ser Ser Asn Ala Ala Thr Arg Asp Asp  
530 535 540

Ile Ile Ile Ala Gly Ser Ser Asp Phe Asn Glu Gln Lys Glu Ile Thr  
545 550 555 560

Asp Arg Ile Tyr Leu Gln Leu Ser Gly Lys Gln Ile Ser Asp Ser Gly  
565 570 575

Ser Asp Glu Thr Glu Arg Met Ser Pro Asn Glu Leu Asp Thr Lys Lys  
580 585 590

Glu Ser Thr Ile Met Ser Glu Val Glu Leu Thr Gln Glu Leu Pro Glu  
595 600 605

Val Glu Glu Gln Gln Asp Leu Gln Thr Ser Pro Lys Lys Leu Val Val  
610 615 620

Glu Glu Glu Thr Leu Met Glu Ile Lys Lys Ser Lys Gly Asn Ser Leu  
625 630 635 640

Gln Leu His Asp Asp Asn Lys Glu Cys Asn Ser Asp Lys Gln Asp Gly  
645 650 655

Thr Glu Ser Leu Asp Val Ala Leu Ile Glu His Glu Ser Lys Gly Gln  
660 665 670

Ser Ser Glu Leu Gln Lys Asn Leu Met Gln Leu Phe Pro Ser Glu Ser  
675 680 685

Gln Glu Ile Ile Gln Asn Arg Arg Thr Ile Lys Arg Arg Gln Lys Asp  
690 695 700

Thr Ile Glu Ile Gly Glu Glu Glu Glu Asn Arg Ser Thr Lys Thr Ser  
705 710 715 720

Pro Thr Lys His Leu Lys Arg Asn Ser Asp Leu Asp Ala Ala Ser Ile  
725 730 735

Lys Arg Glu Pro Ser Cys Ser Ile Thr Ile Gln Thr Gly Glu Thr Gly  
740 745 750

Ser Gly Lys Asp Ser Lys Glu Gln Ser Tyr Val Phe Pro Glu Gly Ile  
755 760 765

Arg Thr Ala Asp Asn Ser Phe Leu Ser Lys Asp Asp Ile Ile Phe Gly  
770 775 780

Asn Ala Val Trp Cys Gln Tyr Thr Trp Asn Tyr Lys Phe Tyr Pro Gly  
785 790 795 800

Ile Leu Leu Glu Val Asp Thr Asn Gln Asp Gly Cys Trp Ile Tyr Phe  
805 810 815

Glu Thr Gly Arg Ser Leu Thr Lys Asp Glu Asp Ile Tyr Tyr Leu Asp  
820 825 830

Ile Arg Ile Gly Asp Ala Val Thr Phe Asp Gly Asn Glu Tyr Val Val  
835 840 845

Val Gly Leu Glu Cys Arg Ser His Asp Leu Asn Ile Ile Arg Cys Ile  
850 855 860

Arg Gly Tyr Asp Thr Val His Leu Lys Lys Lys Asn Ala Ser Gly Leu  
865 870 875 880

Leu Gly Lys Arg Thr Leu Ile Lys Ala Leu Ser Ser Ile Ser Leu Asp  
885 890 895

Leu Ser Glu Trp Ala Lys Arg Ala Lys Ile Ile Leu Glu Asp Asn Glu  
900 905 910

Lys Asn Lys Gly Asp Ala Tyr Arg Tyr Leu Arg His Pro Ile Arg Gly  
915 920 925

Arg Lys Ser Met Thr Asn Val Leu Ser Pro Lys Lys His Thr Asp Asp  
930 935 940

Glu Lys Asp Ile Asn Thr His Thr Glu Val Tyr Asn Asn Glu Ile Glu  
 945 950 955 960

Ser Ser Ser Glu Lys Lys Glu Ile Val Lys Lys Asp Ser Arg Asp Ala  
 965 970 975

Leu Ala Glu His Ala Gly Ala Pro Ser Leu Leu Phe Ser Ser Gly Glu  
 980 985 990

Ile Arg Thr Gly Asn Val Phe Asp Lys Cys Ile Phe Val Leu Thr Ser  
 995 1000 1005

Leu Phe Glu Asn Arg Glu Glu Leu Arg Gln Thr Ile Glu Ser Gln  
 1010 1015 1020

Gly Gly Thr Val Ile Glu Ser Gly Phe Ser Thr Leu Phe Asn Phe  
 1025 1030 1035

Thr His Pro Leu Ala Lys Ser Leu Val Asn Lys Gly Asn Thr Asp  
 1040 1045 1050

Asn Ile Arg Glu Leu Ala Leu Lys Leu Ala Trp Lys Pro His Ser  
 1055 1060 1065

Leu Phe Ala Asp Cys Arg Phe Ala Cys Leu Ile Thr Lys Arg His  
 1070 1075 1080

Leu Arg Ser Leu Lys Tyr Leu Glu Thr Leu Ala Leu Gly Trp Pro  
 1085 1090 1095

Thr Leu His Trp Lys Phe Ile Ser Ala Cys Ile Glu Lys Lys Arg  
 1100 1105 1110

Ile Val Pro His Leu Ile Tyr Gln Tyr Leu Leu Pro Ser Gly Glu  
 1115 1120 1125

Ser Phe Arg Leu Ser Leu Asp Ser Pro Ser Lys Gly Gly Ile Ile  
 1130 1135 1140

Lys Ser Asn Asn Ile Phe Ser Phe Tyr Thr Gln Phe Leu Arg Gly  
 1145 1150 1155

Ser Asn Leu Arg Asp Gln Ile Cys Gly Val Lys Lys Met Leu Asn



1160		1165		1170
Asp Tyr Ile Val Ile Val Trp Gly Arg Ser Glu Leu Asp Ser Phe				
1175		1180		1185
Val Lys Phe Ala Phe Ala Cys Leu Ser Ala Gly Arg Met Leu Thr				
1190		1195		1200
Ile Asp Leu Pro Asn Ile Asp Val Asp Asp Thr Glu Pro Leu Leu				
1205		1210		1215
Asn Ala Leu Asp Ser Leu Val Pro Arg Ile Gly Ser Glu Leu Ser				
1220		1225		1230
Asn Arg Lys Leu Lys Phe Leu Ile Tyr Ala Asn Glu Asn Asn Gly				
1235		1240		1245
Lys Ser Gln Met Lys Leu Leu Glu Arg Leu Arg Ser Gln Ile Ser				
1250		1255		1260
Leu Lys Phe Lys Lys Phe Asn Tyr Ile Phe His Thr Glu Ser Lys				
1265		1270		1275
Glu Trp Leu Ile Gln Thr Ile Ile Asn Glu Asp Thr Gly Phe His				
1280		1285		1290
Asp Asp Ile Thr Asp Asn Asp Ile Tyr Asn Thr Ile Ser Glu Val				
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Arg

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Arg Xaa Arg Ser Xaa Xaa  
1 5

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Arg Ser Xaa Xaa Xaa Pro  
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Xaa Pro Xaa Arg  
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<400> 46

Met Ala Xaa Xaa Xaa Xaa Thr Pro Xaa Xaa Xaa Xaa Ala Lys Lys Lys  
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<400> 47

Met Ala Xaa Xaa Xaa Xaa Thr Xaa Xaa Xaa Xaa Ala Lys Lys Lys  
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<223> Xaa can be any naturally occurring amino acid

<400> 48

Met Ala Xaa Xaa Xaa Xaa Ser Thr Xaa Xaa Xaa Xaa Ala Lys Lys Lys  
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<222> (8)..(10)

<223> Xaa can be any naturally occurring amino acid

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Met Ala Xaa Xaa Xaa Ser Pro Xaa Xaa Xaa Ala Lys Lys Lys  
1 5 10

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<400> 50

Met Ala Xaa Xaa Xaa Xaa Ser Xaa Xaa Xaa Xaa Ala Lys Lys Lys  
1 5 10 15

<210> 51  
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<400> 51

Met Gln Ser Thr Pro Leu  
1 5

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Ser Xaa Xaa  
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<400> 53

Leu Leu Cys Ser Thr Pro Asn  
1 5

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<400> 54

Met Ala Xaa Xaa Xaa Xaa Ser Ser Xaa Xaa Xaa Xaa Ala Lys Lys Lys  
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<400> 55

Arg Xaa Arg Ser Xaa Xaa  
1 5

<210> 56  
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<400> 56

Met Ala Gly Pro Met Gln Ser Thr Pro Leu Asn Gly Ala Tyr Lys Lys  
1 5 10 15

<210> 57  
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<400> 57

Met Ala Xaa Xaa Xaa Xaa Xaa Gln Xaa Xaa Xaa Xaa Ala Lys Lys Lys  
1 5 10 15

<210> 58  
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 <223> Xaa can be any naturally occurring amino acid

<400> 58

Met	Ala	Xaa	Xaa	Xaa	Xaa	Ser	Xaa	Xaa	Xaa	Xaa	Xaa	Ala	Lys	Lys	Lys
1				5					10					15	

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 <223> Xaa can be any naturally occurring amino acid

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<400> 59

Gly	Ala	Xaa	Xaa	Xaa	Xaa	Ser	Xaa	Xaa	Phe	Xaa	Xaa	Ala	Tyr	Lys	Lys
1				5					10					15	

Lys

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<220>  
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Tyr Asp Ile Xaa Gln Val Phe Pro Phe  
 1 5

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<400> 61

Xaa Gly Xaa Gly Gly Ala Xaa Xaa Xaa Xaa Xaa Gln Xaa Xaa Xaa Xaa  
 1 5 10 15

Ala Lys Lys Lys  
 20

<210> 62  
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<400> 62

Gly Ala Xaa Xaa Xaa Xaa Xaa Gln Xaa Xaa Xaa Xaa Ala Lys Lys Lys  
1 5 10 15

<210> 63

<400> 63  
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<210> 64

<400> 64  
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<210> 65  
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<400> 65

Met Ala Gly Pro Met Gln Ser Ser Pro Leu Asn Gly Ala Tyr Lys Lys  
1 5 10 15

<210> 66  
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<400> 66

Met Ala Gly Pro Met Gln Ser Tyr Pro Leu Asn Gly Ala Tyr Lys Lys  
1 5 10 15

<210> 67  
<211> 15  
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<220>  
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<400> 67

Met	Ala	Gly	Pro	Met	Gln	Val	Thr	Pro	Leu	Asn	Gly	Ala	Lys	Lys
1				5					10				15	

<210> 68  
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<220>  
<223> synthetic

<400> 68

Met	Ala	Gly	Pro	Met	Gln	Ala	Thr	Pro	Leu	Asn	Gly	Ala	Tyr	Lys	Lys
1				5					10					15	

<210> 69  
<211> 16  
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<220>  
<223> synthetic

<400> 69

Met	Ala	Gly	Pro	Met	Gln	Gly	Thr	Pro	Leu	Asn	Gly	Ala	Tyr	Lys	Lys
1				5					10					15	

<210> 70  
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<220>  
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<400> 70

Met	Ala	Gly	Pro	Met	Gln	Cys	Thr	Pro	Leu	Asn	Gly	Ala	Tyr	Lys	Lys
1				5					10					15	

<210> 71  
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<400> 71

Met	Ala	Gly	Pro	Met	Gln	Thr	Thr	Pro	Leu	Asn	Gly	Ala	Tyr	Lys	Lys
1				5					10					15	

<210> 72  
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<220>  
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<400> 72

Met	Ala	Gly	Pro	Met	Gln	Ser	Thr	Asn	Leu	Asn	Gly	Ala	Lys	Lys
1				5					10					15

<210> 73  
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<220>  
<223> synthetic

<400> 73

Ala	Gln	Leu	Leu	Cys	Ser	Thr	Pro	Asn	Gly	Leu	Asp	Arg
1				5					10			

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<213> Artificial Sequence

<220>  
<223> synthetic

<400> 74

Pro	Arg	Leu	Leu	Cys	Ser	Thr	Pro	Ser	Phe	Lys	Lys	Thr
1				5					10			

<210> 75

<211> 603  
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 <213> Rattus norvegicus

<400> 75

Met Asn Ala Ala Ala Lys Ala Gly Lys Leu Ala Arg Ala Pro Ala Asp  
 1 5 10 15

Leu Gly Lys Gly Gly Val Pro Gly Asp Ala Val Pro Gly Ala Pro Val  
 20 25 30

Ala Ala Pro Leu Ala Lys Glu Ile Pro Glu Val Leu Val Asp Pro Arg  
 35 40 45

Ser Arg Gln Gln Tyr Val Arg Gly Arg Phe Leu Gly Lys Gly Gly Phe  
 50 55 60

Ala Lys Cys Phe Glu Ile Ser Asp Ser Asp Thr Lys Glu Val Phe Pro  
 65 70 75 80

Gly Lys Ile Val Pro Lys Ser Leu Leu Lys Pro His Gln Lys Glu  
 85 90 95

Lys Met Ser Met Glu Thr Ser Ile His Arg Ser Leu Glu His Gln His  
 100 105 110

Val Val Gly Phe His Gly Phe Phe Glu Asp Ser Asp Phe Val Phe Val  
 115 120 125

Val Leu Glu Leu Cys Arg Arg Arg Ser Leu Leu Glu Leu His Lys Arg  
 130 135 140

Arg Lys Ala Leu Thr Glu Pro Glu Ala Arg Tyr Tyr Leu Arg Gln Ile  
 145 150 155 160

Val Leu Gly Cys Gln Tyr Leu His Arg Asn Gln Val Ile His Arg Asp  
 165 170 175

Leu Lys Leu Gly Asn Leu Phe Leu Asn Glu Asp Leu Glu Val Lys Ile  
 180 185 190

Gly Asp Phe Gly Leu Ala Thr Lys Val Glu Tyr Glu Gly Glu Arg Lys  
 195 200 205

Lys Thr Leu Cys Gly Thr Pro Asn Tyr Ile Ala Pro Glu Val Leu Ser  
 210 215 220

Lys Lys Gly His Ser Phe Glu Val Asp Val Trp Ser Ile Gly Cys Ile  
 225 230 235 240

Met Tyr Thr Leu Leu Val Gly Lys Pro Pro Phe Glu Thr Ser Cys Leu  
 245 250 255

Lys Glu Thr Tyr Leu Arg Ile Lys Lys Asn Glu Tyr Ser Ile Pro Lys  
 260 265 270

His Ile Asn Pro Val Ala Ala Ser Leu Ile Gln Lys Met Leu Gln Thr  
 275 280 285

Asp Pro Ala Ala Arg Pro Thr Ile His Glu Leu Leu Asn Asp Glu Phe  
 290 295 300

Phe Thr Ser Gly Tyr Ile Pro Ala Arg Leu Pro Ile Thr Cys Leu Thr  
 305 310 315 320

Ile Pro Pro Arg Phe Ser Ile Ala Pro Ser Ser Leu Asp Pro Ser Asn  
 325 330 335

Arg Lys Pro Leu Thr Val Leu Asn Lys Gly Val Glu Asn Pro Leu Pro  
 340 345 350

Asp Arg Pro Arg Glu Lys Glu Glu Pro Val Val Arg Glu Thr Asn Glu  
 355 360 365

Ala Ile Glu Cys His Leu Ser Asp Leu Leu Gln Gln Leu Thr Ser Val  
 370 375 380

Asn Ala Ser Lys Pro Ser Glu Arg Gly Leu Val Arg Gln Glu Glu Ala  
 385 390 395 400

Glu Asp Pro Ala Cys Ile Pro Ile Phe Trp Val Ser Lys Trp Val Asp  
 405 410 415

Tyr Ser Asp Lys Tyr Gly Leu Gly Tyr Gln Leu Cys Asp Asn Ser Val  
 420 425 430

Gly Val Leu Phe Asn Asp Ser Thr Arg Leu Ile Leu Tyr Asn Asp Gly  
 435 440 445

Asp Ser Leu Gln Tyr Ile Glu Arg Asp Gly Thr Glu Ser Tyr Leu Thr  
 450 455 460

Val Ser Ser His Pro Asn Ser Leu Met Lys Lys Ile Thr Leu Leu Asn  
 465 470 475 480

Tyr Phe Arg Asn Tyr Met Ser Glu His Leu Leu Lys Ala Gly Ala Asn  
 485 490 495

Ile Thr Pro Arg Glu Gly Asp Glu Leu Ala Arg Leu Pro Tyr Leu Arg  
 500 505 510

Thr Trp Phe Arg Thr Arg Ser Ala Ile Ile Leu His Leu Ser Asn Gly  
 515 520 525

Thr Val Gln Ile Asn Phe Phe Gln Asp His Thr Lys Leu Ile Arg Gly  
 530 535 540

Pro Leu Met Ala Ala Val Thr Tyr Ile Asn Glu Lys Arg Asp Phe Arg  
 545 550 555 560

Thr Tyr Arg Leu Ser Leu Leu Glu Glu Tyr Gly Cys Cys Lys Glu Leu  
 565 570 575

Ala Ser Arg Leu Arg Tyr Ala Arg Thr Met Val Asp Lys Leu Leu Ser  
 580 585 590

Ser Arg Ser Ala Cys Asn Arg Leu Lys Ala Ser  
 595 600

<210> 76  
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 <212> PRT  
 <213> Caenorhabditis elegans

<400> 76

Met Asn Arg Leu Pro Asn Ile Ala Lys Pro Pro Gln Lys Ser Asn Gln  
 1 5 10 15

Arg Lys Glu Lys Ala Pro Pro Glu Val Pro Ala Leu Ile Ala Asp Lys  
 20 25 30

Asp Arg Gly Thr Tyr Tyr Glu Lys Gly Arg Phe Leu Gly Lys Gly Gly  
 35 40 45

Phe Ala His Cys Tyr Glu Leu Thr Asn Arg Ala Thr Arg Glu Val Val  
 50 55 60

Ala Gly Lys Val Val Pro Lys Ser Met Leu Val Lys Gln Tyr Gln Arg  
 65 70 75 80

Asp Lys Met Thr Gln Glu Val Gln Ile His Arg Glu Leu Gly His Ile  
 85 90 95

Asn Ile Val Lys Leu Phe Asn Phe Phe Glu Asp Asn Leu Asn Val Tyr  
 100 105 110

Ile Thr Leu Glu Leu Cys Ala Arg Arg Ser Leu Met Glu Leu His Lys  
 115 120 125

Arg Arg Lys Ala Val Thr Glu Pro Glu Ala Arg Tyr Phe Thr His Gln  
 130 135 140

Ile Val Asp Gly Val Leu Tyr Leu His Asp Leu Asn Ile Ile His Arg  
 145 150 155 160

Asp Met Lys Leu Gly Asn Leu Phe Leu Asn Asp Asp Leu Val Val Lys  
 165 170 175

Ile Gly Asp Phe Gly Leu Ala Thr Thr Val Asn Gly Asp Glu Arg Lys  
 180 185 190

Lys Thr Leu Cys Gly Thr Pro Asn Tyr Ile Ala Pro Glu Val Leu Asn  
 195 200 205

Lys Ala Gly His Ser Phe Glu Val Asp Ile Trp Ala Val Gly Cys Ile  
 210 215 220

Leu Tyr Ile Leu Leu Phe Gly Gln Pro Pro Phe Glu Ser Lys Ser Leu  
 225 230 235 240

Glu Glu Thr Tyr Ser Arg Ile Arg His Asn Asn Tyr Thr Ile Pro Ser  
 245 250 255



Ile Ala Thr Gln Pro Ala Ala Ser Leu Ile Arg Lys Met Leu Asp Pro  
260 265 270

Glu Pro Thr Arg Arg Pro Thr Ala Lys Gln Val Gln Arg Asp Gly Phe  
275 280 285

Phe Lys Ser Gly Phe Met Pro Thr Arg Leu Pro Val Ser Cys Leu Thr  
290 295 300

Met Val Pro Lys Phe Gly Gly His Glu Thr Ser Met Met Glu Glu Asn  
305 310 315 320

Val Ala Pro Arg Gly Val Asp Ala Arg Ser Gln Arg Pro Leu Asn Gly  
325 330 335

Arg Ala Gly Leu Ser Ala Leu Pro Gln His Ile Val Ser Asn Asn Ala  
340 345 350

Asp Arg Glu Arg Ala Gln Gln Gln Ala Ala Glu Ala Thr Phe Arg Glu  
355 360 365

Pro Glu Asp Ala Tyr Leu Ser Gln Leu Phe His Gln Val Ala Val Leu  
370 375 380

Leu Glu Gln Arg Ile Pro Gly Leu Glu Glu Glu Glu Ala Ala Leu Asp  
385 390 395 400

Gly Tyr Gln Ser Pro Glu Cys Leu Pro Val Phe Trp Ile Ser Lys Trp  
405 410 415

Val Asp Tyr Ser Asp Lys Tyr Gly Ile Gly Tyr Gln Leu Cys Asp Asn  
420 425 430

Ser Val Gly Val Leu Phe Asn Asp Asn Ser Arg Ile Met Leu Asp Gln  
435 440 445

Ala Gly Asn Glu Leu Thr Tyr Ile Glu Lys Ser Asn Lys Glu His Tyr  
450 455 460

Phe Ser Met His Ser Gly Glu Met Pro Gly Leu Leu Asn Lys Lys Val  
465 470 475 480

Thr Leu Leu Lys Tyr Phe Arg Ser Tyr Met Asn Asp His Leu Val Lys  
485 490 495

Ala Gly Glu Gly Ser Glu Gln Arg Ala Gly Asp Asp Leu Ala Arg Leu  
500 505 510

Pro Thr Leu Arg Val Trp Phe Arg Thr Lys Ser Ala Ile Val Leu His  
515 520 525

Leu Ser Asn Gly Thr Val Gln Ile Asn Phe Phe Asn Asp His Val Lys  
530 535 540

Met Met Met Cys Pro Leu Met Gln Ala Val Thr Phe Ile Asp Gln Asn  
545 550 555 560

Lys Arg Met Leu Thr Tyr Lys Leu Asn Asn Leu Gln Arg Asn Gly Cys  
565 570 575

Pro Glu Lys Phe Leu His Arg Leu Lys Tyr Ala Lys Thr Met Ile Glu  
580 585 590

Arg Leu Met Ser Asp Ala Asn Val Val Ser Gln Asn Pro Ala Arg Gln  
595 600 605

Pro Asp Met Pro Arg Ser Met Ala Ala Ala Arg Ser Ala Ser Ala Gly  
610 615 620

Ser Arg Gly Pro Asn Gln Ala Ala Ser His Leu Pro Gln Ser Ala Ser  
625 630 635 640

Gly Ser Asn Ile His Pro Arg Arg  
645

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<213> Homo sapiens

<400> 77

Ser Ile Ala Pro Ser Ser Leu Asp Pro Ser Asn Arg Lys Pro Leu Thr  
1 5 10 15

Val Leu Asn Lys Gly Leu Glu Asn Pro Leu Pro Glu Arg Pro Arg Glu  
20 25 30

Lys Glu Glu Pro Val Val Arg Glu Thr Gly Glu Val Val Asp Cys His  
 35 40 45

Leu Ser Asp Met Leu Gln Gln Leu His Ser Val Asn Ala Ser Lys Pro  
 50 55 60

Ser Glu Arg Gly Leu Val Arg Gln Glu Glu Ala Glu Asp Pro Ala Cys  
 65 70 75 80

Ile Pro Ile Phe Trp Val Ser Lys Trp Val Asp Tyr Ser Asp Lys Tyr  
 85 90 95

Gly Leu Gly Tyr Gln Leu Cys Asp Asn Ser Val Gly Val Leu Phe Asn  
 100 105 110

Asp Ser Thr Arg Leu Ile Leu Tyr Asn Asp Gly Asp Ser Leu Gln Tyr  
 115 120 125

Ile Glu Arg Asp Gly Thr Glu Ser Tyr Leu Thr Val Ser Ser His Pro  
 130 135 140

Asn Ser Leu Met Lys Lys Ile Thr Leu Leu Lys Tyr Phe Arg Asn Tyr  
 145 150 155 160

Met Ser Glu His Leu Leu Lys Ala Gly Ala Asn Ile Thr Pro Arg Glu  
 165 170 175

Gly Asp Glu Leu Ala Arg Leu Pro Tyr Leu Arg Thr Trp Phe Arg Thr  
 180 185 190

Arg Ser Ala Ile Ile Leu His Leu Ser Asn Gly Ser Val Gln Ile Asn  
 195 200 205

Phe Phe Gln Asp His Thr Lys Leu Ile Leu Cys Pro Leu Met Ala Ala  
 210 215 220

Val Thr Tyr Ile Asp Glu Lys Arg Asp Phe Arg Thr Tyr Arg Leu Ser  
 225 230 235 240

Leu Leu Glu Glu Tyr Gly Cys Cys Lys Glu Leu Ala Ser Arg Leu Arg  
 245 250 255

Tyr Ala Arg Thr Met Val Asp Lys Leu Leu Ser Ser Arg Ser Ala Ser  
260 265 270

Asn Arg Leu Lys Ala Ser  
275

<210> 78  
<211> 282  
<212> PRT  
<213> *Xenopus laevis*

<400> 78

Ser Ile Ala Pro Ser Thr Ile Asp Gln Ser Leu Arg Lys Pro Leu Thr  
1 5 10 15

Ala Ile Asn Lys Gly Gln Asp Ser Pro Leu Val Glu Lys Gln Val Ala  
20 25 30

Pro Ala Lys Glu Glu Glu Met Gln Gln Pro Glu Phe Thr Glu Pro Ala  
35 40 45

Asp Cys Tyr Leu Ser Glu Met Leu Gln Gln Leu Thr Cys Leu Asn Ala  
50 55 60

Val Lys Pro Ser Glu Arg Ala Leu Ile Arg Gln Glu Glu Ala Glu Asp  
65 70 75 80

Pro Ala Ser Ile Pro Ile Phe Trp Ile Ser Lys Trp Val Asp Tyr Ser  
85 90 95

Asp Lys Tyr Gly Leu Gly Tyr Gln Leu Cys Asp Asn Ser Val Gly Val  
100 105 110

Leu Phe Asn Asp Ser Thr Arg Leu Ile Met Tyr Asn Asp Gly Asp Ser  
115 120 125

Leu Gln Tyr Ile Glu Arg Asn Asn Thr Glu Ser Tyr Leu Asn Val Arg  
130 135 140

Ser Tyr Pro Thr Thr Leu Thr Lys Lys Ile Thr Leu Leu Lys Tyr Phe  
145 150 155 160

Arg Asn Tyr Met Ser Glu His Leu Leu Lys Ala Gly Ala Asn Thr Thr

	165		170		175
Pro Arg Glu Gly Asp Glu Leu Ala Arg Leu Pro Phe Leu Arg Thr Trp					
	180		185		190
Phe Arg Thr Arg Ser Ala Ile Ile Leu His Leu Ser Asn Gly Thr Val					
	195		200		205
Gln Ile Asn Phe Phe Gln Asp His Thr Lys Ile Ile Leu Cys Pro Leu					
	210		215		220
Met Ala Ala Val Ser Tyr Ile Asp Glu Lys Arg Glu Phe Arg Thr Tyr					
	225		230		235
Lys Leu Ser Leu Ile Gln Glu Phe Gly Cys Cys Lys Glu Leu Ala Ser					
	245		250		255
Arg Leu Arg Tyr Ala Arg Thr Met Val Glu Lys Leu Gln Ser Ser Lys					
	260		265		270
Ser Ala Val Ala His Val Lys Ala Ser Ala					
	275		280		

<210> 79  
 <211> 279  
 <212> PRT  
 <213> Drosophila melanogaster

<400> 79

Gly Ser Asn Asp Thr Ile Glu Asp Ser Met His Arg Lys Pro Leu Met					
1	5		10		15
Glu Met Asn Gly Ile Arg Pro Asp Asp Thr Arg Leu Glu Ser Thr Phe					
	20		25		30
Leu Lys Ala Asn Leu His Asp Ala Ile Thr Ala Ser Ala Gln Val Cys					
	35		40		45
Arg His Ser Glu Asp Tyr Arg Ser Asp Ile Glu Ser Leu Tyr Gln Gln					
	50		55		60
Leu Thr Asn Leu Ile Asn Gly Lys Pro Arg Ile Leu Gln Gly Asn Leu					
65	70		75		80

Gly Asp Glu Asn Thr Asp Pro Ala Ala Gln Pro Leu Phe Trp Ile Ser  
85 90 95

Lys Trp Val Asp Tyr Ser Asp Lys Tyr Gly Phe Gly Tyr Gln Leu Cys  
100 105 110

Asp Glu Gly Ile Gly Val Met Phe Asn Asp Thr Thr Lys Leu Ile Leu  
115 120 125

Leu Pro Asn Gln Ile Asn Val His Phe Ile Asp Lys Asp Gly Lys Glu  
130 135 140

Thr Tyr Met Thr Thr Thr Asp Tyr Cys Lys Ser Leu Asp Lys Lys Met  
145 150 155 160

Lys Leu Leu Ser Tyr Phe Lys Arg Tyr Met Ile Glu His Leu Val Lys  
165 170 175

Ala Gly Ala Asn Asn Val Asn Ile Glu Ser Asp Gln Ile Ser Arg Met  
180 185 190

Pro His Leu His Ser Trp Phe Arg Thr Thr Cys Ala Val Val Met His  
195 200 205

Leu Thr Asn Gly Ser Val Gln Leu Asn Phe Ser Asp His Met Lys Leu  
210 215 220

Ile Leu Cys Pro Arg Met Ser Ala Ile Thr Tyr Met Asp Gln Glu Lys  
225 230 235 240

Asn Phe Arg Thr Tyr Arg Phe Ser Thr Ile Val Glu Asn Gly Val Ser  
245 250 255

Lys Asp Leu Tyr Gln Lys Ile Arg Tyr Ala Gln Glu Lys Leu Arg Lys  
260 265 270

Met Leu Glu Lys Met Phe Thr  
275

<210> 80  
<211> 13  
<212> PRT  
<213> Artificial Sequence

<220>

<223> synthetic

<400> 80

Ala Gln Leu Leu Cys Ser Thr Pro Asn Gly Leu Asp Arg

1 5 10

<210> 81

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 81

Pro Arg Leu Leu Cys Ser Thr Pro Ser Phe Lys Lys Thr

1 5 10

<210> 82

<211> 197

<212> PRT

<213> Homo sapiens

<400> 82

Pro Ile Phe Trp Val Ser Lys Trp Val Asp Tyr Ser Asp Lys Tyr Gly

1 5 10 15

Leu Gly Tyr Gln Leu Cys Asp Asn Ser Val Gly Val Leu Phe Asn Asp

20 25 30

Ser Thr Arg Leu Ile Leu Tyr Asn Asp Gly Asp Ser Leu Gln Tyr Ile

35 40 45

Glu Arg Asp Gly Thr Glu Ser Tyr Leu Thr Val Ser Ser His Pro Asn

50 55 60

Ser Leu Met Lys Lys Ile Thr Leu Leu Lys Tyr Phe Arg Asn Tyr Met

65 70 75 80

Ser Glu His Leu Leu Lys Ala Gly Ala Asn Ile Thr Pro Arg Glu Gly

85 90 95

Asp Glu Leu Ala Arg Leu Pro Tyr Leu Arg Thr Trp Phe Arg Thr Arg

100 105 110

Ser Ala Ile Ile Leu His Leu Ser Asn Gly Ser Val Gln Ile Asn Phe  
 115 120 125

Phe Gln Asp His Ile Lys Leu Ile Leu Cys Pro Leu Met Ala Ala Val  
 130 135 140

Thr Tyr Ile Asp Glu Lys Arg Asp Phe Arg Thr Tyr Arg Leu Ser Leu  
 145 150 155 160

Leu Glu Glu Tyr Gly Cys Cys Lys Glu Leu Ala Ser Arg Leu Arg Tyr  
 165 170 175

Ala Arg Thr Met Val Asp Lys Leu Leu Ser Ser Arg Ser Ala Ser Asn  
 180 185 190

Arg Leu Lys Ala Ser  
 195

<210> 83  
 <211> 197  
 <212> PRT  
 <213> Mus musculus

<400> 83

Pro Ile Phe Trp Val Ser Lys Trp Val Asp Tyr Ser Asp Lys Tyr Gly  
 1 5 10 15

Leu Gly Tyr Gln Leu Cys Asp Asn Ser Val Gly Val Leu Phe Asn Asp  
 20 25 30

Ser Thr Arg Leu Ile Leu Tyr Asn Asp Gly Asp Ser Leu Gln Tyr Ile  
 35 40 45

Glu Arg Asp Gly Thr Glu Ser Tyr Leu Thr Val Ser Ser His Pro Asn  
 50 55 60

Ser Leu Met Lys Lys Ile Thr Leu Leu Asn Tyr Phe Arg Asn Tyr Met  
 65 70 75 80

Ser Glu His Leu Leu Lys Ala Gly Ala Asn Ile Thr Pro Arg Glu Gly  
 85 90 95



Asp Glu Leu Ala Arg Leu Pro Tyr Leu Arg Thr Trp Phe Arg Thr Arg  
100 105 110

Ser Ala Ile Ile Leu His Leu Ser Asn Gly Thr Val Gln Ile Asn Phe  
115 120 125

Phe Gln Asp His Thr Lys Leu Ile Leu Cys Pro Leu Met Ala Ala Val  
130 135 140

Thr Tyr Ile Asn Glu Lys Arg Asp Phe Gln Thr Tyr Arg Leu Ser Leu  
145 150 155 160

Leu Glu Glu Tyr Gly Cys Cys Lys Glu Leu Ala Ser Arg Leu Arg Tyr  
165 170 175

Ala Arg Thr Met Val Asp Lys Leu Leu Ser Ser Arg Ser Ala Ser Asn  
180 185 190

Arg Leu Lys Ala Ser  
195

<210> 84  
<211> 197  
<212> PRT  
<213> Rattus norvegicus

<400> 84

Pro Ile Phe Trp Val Ser Lys Trp Val Asp Tyr Ser Asp Lys Tyr Gly  
1 5 10 15

Leu Gly Tyr Asp Leu Cys Asp Asn Ser Val Gly Val Leu Phe Asn Asp  
20 25 30

Ser Thr Arg Leu Ile Leu Tyr Asn Asp Gly Asp Ser Leu Gln Tyr Ile  
35 40 45

Glu Arg Asp Gly Thr Glu Ser Tyr Leu Thr Val Ser Ser His Pro Asn  
50 55 60

Ser Leu Met Lys Lys Ile Thr Leu Leu Asn Tyr Phe Arg Asn Tyr Met  
65 70 75 80

Ser Glu His Leu Leu Lys Ala Gly Ala Asn Ile Thr Pro Arg Glu Gly  
85 90 95

Asp Glu Leu Ala Arg Leu Pro Tyr Leu Arg Thr Trp Phe Arg Thr Arg  
100 105 110

Ser Ala Ile Ile Leu His Leu Ser Asn Gly Thr Val Gln Ile Asn Phe  
115 120 125

Phe Gln Asp His Thr Lys Leu Ile Arg Gly Pro Leu Met Ala Ala Val  
130 135 140

Thr Tyr Ile Asn Glu Lys Arg Asp Phe Arg Thr Tyr Arg Leu Ser Leu  
145 150 155 160

Leu Glu Glu Tyr Gly Cys Cys Lys Glu Leu Ala Ser Arg Leu Arg Tyr  
165 170 175

Ala Arg Thr Met Val Asp Lys Leu Leu Ser Ser Arg Ser Ala Cys Asn  
180 185 190

Arg Leu Lys Ala Ser  
195

<210> 85  
<211> 210  
<212> PRT  
<213> C. elegans

<400> 85

Pro Val Phe Trp Ile Ser Lys Trp Val Asp Tyr Ser Asp Lys Tyr Gly  
1 5 10 15

Ile Gly Tyr Gln Leu Cys Asp Asn Ser Val Gly Val Leu Phe Asn Asp  
20 25 30

Asn Ser Arg Ile Met Leu Asp Gln Ala Gly Asn Glu Leu Thr Tyr Ile  
35 40 45

Glu Lys Ser Asn Lys Glu His Tyr Phe Ser Met His Ser Gly Glu Met  
50 55 60

Pro Gly Leu Leu Met Lys Lys Asn Thr Leu Leu Lys Tyr Phe Arg Ser  
65 70 75 80

Tyr Met Asn Asp His Leu Val Lys Ala Gly Glu Gly Ser Glu Gln Arg  
85 90 95

Ala Gly Asp Asp Leu Ala Arg Leu Pro Thr Leu Arg Val Trp Phe Arg  
100 105 110

Thr Lys Ser Ala Ile Val Leu His Leu Ser Asn Gly Thr Val Gln Ile  
115 120 125

Asn Phe Phe Asn Asp His Val Lys Met Met Met Cys Pro Leu Met Gln  
130 135 140

Ala Val Thr Phe Ile Asp Gln Asn Lys Arg Met Leu Thr Tyr Lys Leu  
145 150 155 160

Asn Asn Leu Gln Arg Asn Gly Cys Pro Glu Lys Phe Leu His Arg Leu  
165 170 175

Lys Tyr Ala Lys Thr Met Ile Glu Arg Leu Met Asp Ser Ala Asn Val  
180 185 190

Val Ser Gln Asn Pro Ala Arg Gln Pro Asp Met Pro Arg Ser Met Ala  
195 200 205

Ala Ala  
210

<210> 86  
<211> 189  
<212> PRT  
<213> Drosophila laevis

<400> 86

Pro Leu Phe Trp Ile Ser Lys Trp Val Asp Tyr Ser Asp Lys Tyr Gly  
1 5 10 15

Phe Gly Tyr Gln Leu Cys Asp Glu Gly Ile Gly Val Met Phe Asn Asp  
20 25 30

Thr Thr Lys Leu Ile Leu Leu Pro Asn Gln Ile Asn Val His Phe Ile  
35 40 45

Asp Lys Asp Gly Lys Glu Thr Tyr Met Thr Thr Thr Asp Tyr Cys Lys  
50 55 60

Ser Leu Asp Lys Lys Met Lys Leu Leu Ser Tyr Phe Lys Arg Tyr Met  
65 70 75 80

Ile Glu His Leu Val Lys Ala Gly Ala Asn Asn Val Asn Ile Glu Ser  
85 90 95

Asp Gln Ile Ser Arg Met Pro His Leu His Ser Trp Phe Arg Thr Thr  
100 105 110

Cys Ala Val Val Met His Leu Thr Asn Gly Ser Val Gln Leu Asn Phe  
115 120 125

Ser Asp His Met Lys Leu Ile Leu Cys Pro Arg Met Ser Ala Ile Thr  
130 135 140

Tyr Met Asp Gln Glu Lys Asn Phe Arg Thr Tyr Arg Phe Ser Thr Ile  
145 150 155 160

Val Glu Asn Gly Val Ser Lys Asp Leu Tyr Gln Lys Ile Arg Tyr Ala  
165 170 175

Gln Glu Lys Leu Arg Lys Met Leu Glu Lys Met Phe Thr  
180 185

<210> 87  
<211> 198  
<212> PRT  
<213> Xenopus laevis

<400> 87

Pro Ile Phe Trp Ile Ser Lys Trp Val Asp Tyr Ser Asp Lys Tyr Gly  
1 5 10 15

Leu Gly Tyr Gln Leu Cys Asp Asn Ser Val Gly Val Leu Phe Asn Asp  
20 25 30

Ser Thr Arg Leu Ile Met Tyr Asn Asp Gly Asp Ser Leu Gln Tyr Ile  
35 40 45

Glu Arg Asn Asn Thr Glu Ser Tyr Leu Asn Val Arg Ser Tyr Pro Thr  
50 55 60

Thr Leu Thr Lys Lys Ile Thr Leu Leu Lys Tyr Phe Arg Asn Tyr Met  
65 70 75 80

Ser Glu His Leu Leu Lys Ala Gly Ala Asn Thr Thr Pro Arg Glu Gly  
85 90 95

Asp Glu Leu Ala Arg Leu Pro Phe Leu Arg Thr Trp Phe Arg Thr Arg  
100 105 110

Ser Ala Ile Ile Leu His Leu Ser Asn Gly Thr Val Gln Ile Asn Phe  
115 120 125

Phe Gln Asp His Thr Lys Ile Ile Leu Cys Pro Leu Met Ala Ala Val  
130 135 140

Ser Tyr Ile Asp Glu Lys Arg Glu Phe Arg Thr Tyr Lys Leu Ser Leu  
145 150 155 160

Ile Gln Glu Phe Gly Cys Cys Lys Glu Leu Ala Ser Arg Leu Arg Tyr  
165 170 175

Ala Arg Thr Met Val Glu Lys Leu Gln Ser Ser Lys Ser Ala Val Ala  
180 185 190

His Val Lys Ala Ser Ala  
195

<210> 88  
<211> 195  
<212> PRT  
<213> Helicobacter pylori

<400> 88

Pro Ile Leu Trp Val Ser Lys Trp Val Asp Tyr Ser Asp Lys Tyr Gly  
1 5 10 15

Leu Gly Tyr Gln Leu Cys Asp Gly Ser Val Gly Val Leu Phe Asn Asp  
20 25 30

Ser Thr Arg Leu Leu Leu His Ala Asn Ala Asp Thr Leu Glu Tyr Ile  
35 40 45

Glu Arg Asp Gly Asn Glu Lys Tyr Cys Arg Leu Gly Ser Tyr Asp Ser  
50 55 60

Thr Leu His Lys Lys Val Thr Leu Leu Lys Tyr Phe Arg Asn Tyr Met  
65 70 75 80

Ser Glu His Leu Leu Lys Ala Gly Ala Ala Met Thr Pro Arg Glu Ser  
85 90 95

Asp Ser Met Ala Arg Leu Pro Phe Leu Gln Ser Trp Phe Arg Thr Lys  
100 105 110

Ser Ala Ile Val Leu His Leu Ser Asn Gly Thr Val Gln Ile Asn Phe  
115 120 125

Phe Glu Asp His Thr Lys Leu Ile Val Cys Pro Met Met Gly Ala Ala  
130 135 140

Thr Tyr Ile Asp Ala Lys Arg Asn Phe Arg Thr Phe Arg Leu Asn Leu  
145 150 155 160

Ile Glu Lys His Gly Cys Thr Pro Asp Leu Tyr Asp Arg Ile Lys Tyr  
165 170 175

Ala Asn Asn Met Val Lys Asn Met Leu Asp Lys Lys Thr Thr Thr Ala  
180 185 190

Ala Ala His  
195

<210> 89  
<211> 186  
<212> PRT  
<213> Homo sapiens

<400> 89

Ser Phe Gln Trp Val Thr Lys Trp Val Asp Tyr Ser Asn Lys Tyr Gly  
1 5 10 15

Phe Gly Tyr Gln Leu Ser Asp His Thr Val Gly Val Leu Phe Asn Asn  
20 25 30

Gly Ala His Met Ser Leu Leu Pro Asp Lys Lys Thr Val His Tyr Tyr  
35 40 45

Ala Glu Leu Gly Gln Cys Ser Val Phe Pro Ala Thr Asp Ala Arg Glu  
50 55 60

Gln Phe Ile Ser Gln Val Thr Val Leu Lys Tyr Phe Ser His Tyr Met  
65 70 75 80

Glu Glu Asn Leu Met Asp Gly Gly Asp Leu Pro Ser Val Thr Asp Ile  
85 90 95

Arg Arg Pro Arg Leu Tyr Leu Leu Gln Trp Leu Lys Ser Asp Lys Ala  
100 105 110

Leu Met Met Leu Phe Asn Asp Gly Thr Phe Gln Val Asn Phe Tyr His  
115 120 125

Asp His Thr Lys Ile Ile Ile Cys Ser Gln Asn Glu Glu Tyr Leu Leu  
130 135 140

Thr Tyr Ile Asn Glu Asp Arg Ile Ser Thr Thr Phe Arg Leu Thr Thr  
145 150 155 160

Leu Leu Met Ser Gly Cys Ser Ser Glu Leu Lys Asn Arg Met Glu Tyr  
165 170 175

Ala Leu Asn Met Leu Leu Gln Arg Cys Asn  
180 185

<210> 90  
<211> 186  
<212> PRT  
<213> Mus musculus

<400> 90

Ser Phe Gln Trp Val Thr Lys Trp Val Asp Tyr Ser Asn Lys Tyr Gly  
1 5 10 15

Phe Gly Tyr Gln Leu Ser Asp His Thr Val Gly Val Leu Phe Asn Asn  
20 25 30

Gly Ala His Met Ser Leu Leu Pro Asp Lys Lys Thr Val His Tyr Tyr  
35 40 45

Ala Glu Leu Gly Gln Cys Ser Val Phe Pro Ala Thr Asp Ala Pro Glu  
50 55 60

Gln Phe Ile Ser Gln Val Thr Val Leu Lys Tyr Phe Ser His Tyr Met  
 65 70 75 80

Glu Glu Asn Leu Met Asp Gly Gly Asp Leu Pro Ser Val Thr Asp Ile  
 85 90 95

Arg Arg Pro Arg Leu Tyr Leu Leu Gln Trp Leu Lys Ser Asp Lys Ala  
 100 105 110

Leu Met Met Leu Phe Asn Asp Gly Thr Phe Gln Val Asn Phe Tyr His  
 115 120 125

Asp His Thr Lys Ile Ile Ile Cys Asn Gln Ser Glu Glu Tyr Leu Leu  
 130 135 140

Thr Tyr Ile Asn Glu Asp Arg Ile Ser Thr Thr Phe Arg Leu Thr Thr  
 145 150 155 160

Leu Leu Met Ser Gly Cys Ser Leu Glu Leu Lys Asn Arg Met Glu Tyr  
 165 170 175

Ala Leu Asn Met Leu Leu Gln Arg Cys Asn  
 180 185

<210> 91  
 <211> 186  
 <212> PRT  
 <213> Rattus norvegicus

<400> 91

Ser Gly Gln Trp Val Thr Lys Trp Val Asp Tyr Ser Asn Lys Tyr Gly  
 1 5 10 15

Phe Gly Tyr Gln Leu Ser Asp His Thr Val Gly Val Leu Phe Asn Asn  
 20 25 30

Gly Ala His Met Ser Leu Leu Pro Asp Lys Lys Thr Val His Tyr Tyr  
 35 40 45

Ala Glu Leu Gly Gln Cys Ser Val Phe Pro Ala Thr Asp Ala Pro Glu  
 50 55 60



Gln Phe Ile Ser Gln Val Thr Val Leu Lys Tyr Phe Ser His Tyr Met  
65 70 75 80

Glu Glu Asn Leu Met Asp Gly Gly Asp Leu Pro Ser Val Thr Asp Ile  
85 90 95

Arg Arg Pro Arg Leu Tyr Leu Leu Gln Trp Leu Lys Ser Asp Lys Ala  
100 105 110

Leu Met Met Leu Phe Asn Asp Gly Thr Phe Gln Val Asn Phe Tyr His  
115 120 125

Asp His Thr Lys Ile Ile Ile Cys Asn Gln Asn Glu Glu Tyr Leu Leu  
130 135 140

Thr Tyr Ile Asn Glu Asp Arg Ile Ser Thr Thr Phe Arg Leu Thr Thr  
145 150 155 160

Leu Leu Met Ser Gly Cys Ser Leu Glu Leu Lys His Arg Met Glu Tyr  
165 170 175

Ala Leu Asn Met Leu Leu Gln Arg Cys Asn  
180 185

<210> 92  
<211> 214  
<212> PRT  
<213> C. elegans

<400> 92

Pro Ile Phe Trp Val Ser Gln Trp Val His Phe Pro Asn His Gly Ile  
1 5 10 15

Gly Tyr Arg Leu Cys Glu Asn Ser Ser Gly Met Leu Phe Asn Asp Asn  
20 25 30

Thr Gln Met Lys Val Asn Ser Ala Gly Asn Gln Leu Thr Phe Val Asp  
35 40 45

Glu Asn Asn Thr Glu Gln Phe Tyr Thr Met Asn Asp Gln Val Pro Met  
50 55 60

Asn Leu Gln Thr Lys Ile Asn Ile Phe Ser Asn Val Gln Ser Tyr Met  
65 70 75 80

Asn Thr His Leu Glu Ala Asp Thr His Leu Glu Ala Glu Asp Gln Cys  
85 90 95

Val Asn Lys Val Pro Pro Leu Arg Asn Phe Ala Arg Leu Pro Thr Ile  
100 105 110

Gln Asn Trp Phe Glu Thr Lys Ser Ala Val Ile Phe His Leu Ser Asn  
115 120 125

Gly Thr Val Gln Ile Asn Phe Leu Asp His Val Lys Met Val Leu Cys  
130 135 140

Pro Leu Leu Lys Ser Val Thr Phe Ile Glu Glu Asn Lys Arg Val Ser  
145 150 155 160

Thr Phe Thr Phe Ala Asn Ile Leu Thr Asn Ser Cys Pro Lys Lys Tyr  
165 170 175

Leu Ser Arg Ile Glu Tyr Ala Gln Ala Lys Ile Lys Leu Leu Arg Pro  
180 185 190

Thr Asn Asn Gln Glu His Val Val Tyr Val Asp Ser Pro Cys Arg Pro  
195 200 205

Thr Thr Ser Asn Thr Ala  
210

<210> 93  
<211> 187  
<212> PRT  
<213> *Xenopus laevis*

<400> 93

Ser Phe His Trp Val Thr Lys Trp Val Asp Tyr Ser Asn Lys Tyr Gly  
1 5 10 15

Phe Gly Tyr Gln Leu Ser Asp His Thr Val Gly Val Leu Phe Asn Asn  
20 25 30

Gly Ala His Met Ser Phe Leu Pro Asp Lys Lys Thr Val His Tyr Tyr  
35 40 45

Ala Glu Leu Gly Gln Cys Ser Val Phe Pro Ala Thr Glu Ala Pro Glu  
50 55 60

Gln Phe Ile Ser Gln Val Thr Val Leu Lys Tyr Phe Ser His Tyr Met  
65 70 75 80

Glu Glu Asn Leu Met Asp Gly Gly Asp Leu Pro Ser Val Thr Asp Val  
85 90 95

Cys Arg Pro Arg Leu Tyr Leu Leu Gln Trp Leu Lys Ser Asp Lys Ala  
100 105 110

Leu Met Met Leu Phe Asn Asp Gly Thr Phe Gln Val Asn Phe Tyr His  
115 120 125

Asp His Thr Lys Ile Ile Ile Ala Asn Gln Asn Asp Glu Tyr Val Leu  
130 135 140

Thr Tyr Ile Asn Glu Asp Arg Met Ser Thr Thr Phe His Leu Ser Thr  
145 150 155 160

Leu Leu Ile Ser Gly Cys Ser Pro Asp Leu Arg Gln Arg Leu Arg Tyr  
165 170 175

Ala Leu Arg Leu Leu Arg Asp Arg Ser Pro Ala  
180 185

<210> 94  
<211> 187  
<212> PRT  
<213> Homo sapiens

<400> 94

Pro Leu Val Trp Phe Ser Glu Trp Val Gly Phe Ser Asn Lys Phe Gly  
1 5 10 15

Phe Gly Tyr Gln Leu Ser Ser Arg Arg Val Ala Val Leu Phe Asn Asp  
20 25 30

Gly Thr His Met Ala Leu Ser Ala Asn Arg Lys Thr Val His Tyr Asn  
35 40 45

Pro Thr Ser Thr Lys His Phe Ser Phe Ser Val Gly Ala Val Arg Arg  
50 55 60

Ala Leu Gln Pro Gln Leu Gly Ile Leu Arg Tyr Phe Ala Ser Tyr Met  
65 70 75 80

Glu Gln His Leu Met Lys Gly Gly Asp Leu Pro Ser Val Glu Glu Val  
85 90 95

Glu Val Pro Ala Pro Pro Leu Leu Leu Gln Trp Val Lys Thr Asp Gln  
100 105 110

Ala Leu Leu Met Leu Phe Ser Asp Gly Thr Val Gln Val Asn Phe Tyr  
115 120 125

Gly Asp His Thr Lys Leu Ile Leu Ser Gly Trp Glu Pro Leu Leu Val  
130 135 140

Thr Phe Val Ala Arg Asn Arg Ser Ala Cys Thr Tyr Leu Ala Ser His  
145 150 155 160

Leu Arg Gln Leu Gly Cys Ser Pro Asp Leu Arg Gln Arg Leu Arg Tyr  
165 170 175

Ala Leu Arg Leu Leu Arg Asp Arg Ser Pro Ala  
180 185

<210> 95  
<211> 187  
<212> PRT  
<213> Mus musculus

<400> 95

Pro Leu Val Trp Val Ser Lys Trp Val Asp Tyr Ser Asn Lys Phe Gly  
1 5 10 15

Phe Gly Tyr Gln Leu Ser Ser Arg Arg Val Ala Val Leu Phe Asn Asp  
20 25 30

Gly Thr His Met Ala Leu Ser Ala Asn Arg Lys Thr Val His Tyr Asn  
35 40 45

Pro Thr Ser Thr Lys His Phe Ser Phe Ser Met Gly Ser Val Pro Arg  
50 55 60

Ala Leu Gln Pro Gln Leu Gly Ile Leu Arg Tyr Phe Ala Ser Tyr Met  
65 70 75 80

Glu Gln His Leu Met Lys Gly Gly Asp Leu Pro Ser Val Glu Glu Ala  
85 90 95

Glu Val Pro Ala Pro Pro Leu Leu Leu Gln Trp Val Lys Thr Asp Gln  
100 105 110

Ala Leu Leu Met Leu Phe Ser Asp Gly Thr Val Gln Val Asn Phe Tyr  
115 120 125

Gly Asp His Thr Lys Leu Ile Leu Ser Gly Trp Glu Pro Leu Leu Val  
130 135 140

Thr Phe Val Ala Arg Asn Arg Ser Ala Cys Thr Tyr Leu Ala Ser His  
145 150 155 160

Leu Arg Gln Leu Gly Cys Ser Pro Asp Leu Arg Gln Arg Leu Arg Tyr  
165 170 175

Ala Leu Arg Leu Leu Arg Asp Gln Ser Pro Ala  
180 185

<210> 96  
<211> 186  
<212> PRT  
<213> Rattus norvegicus

<400> 96

Pro Leu Val Trp Val Ser Lys Trp Val Asp Tyr Ser Asn Lys Phe Gly  
1 5 10 15

Phe Gly Tyr Gln Leu Ser Ser Arg Arg Val Ala Val Leu Phe Asn Asp  
20 25 30

Gly Thr His Met Ala Leu Ser Ala Asn Arg Lys Thr Val His Tyr Asn  
35 40 45

Pro Thr Ser Thr Lys His Phe Ser Phe Ser Val Gly Ser Val Pro Arg  
50 55 60

Ala Leu Arg Pro Gln Leu Gly Ile Leu Arg Tyr Phe Ala Ser Tyr Met  
65 70 75 80

Glu Gln His Leu Met Lys Gly Gly Asp Leu Pro Ser Val Glu Glu Val  
85 " 90 95

Glu Val Pro Ala Pro Pro Leu Leu Leu Gln Trp Val Lys Thr Asp Gln  
100 105 110

Ala Leu Leu Met Leu Phe Ser Asp Gly Thr Val Gln Val Asn Phe Tyr  
115 120 125

Gly Asp His Thr Lys Leu Ile Leu Ser Gly Trp Glu Pro Leu Leu Val  
130 135 140

Thr Phe Val Ala Arg Asn Arg Ser Ala Cys Thr Tyr Leu Ala Ser His  
145 150 155 160

Leu Arg Gln Leu Gly Cys Ser Pro Asp Leu Arg Gln Arg Leu Arg Tyr  
165 170 175

Ala Leu Arg Leu Leu Arg Asp Gln Ser Pro  
180 185

<210> 97  
<211> 186  
<212> PRT  
<213> Xenopus laevis

<400> 97

His Phe Val Trp Val Ser Lys Trp Val Asp Tyr Ser Asn Lys Tyr Gly  
1 5 10 15

Phe Gly Tyr Gln Leu Ser Asn Arg Ser Ile Gly Val Leu Phe Asn Ser  
20 25 30

Gly Thr His Met Val Phe Pro Ala His Arg Arg His Val His Tyr Asn  
35 40 45

Leu Thr Asn Ser Arg His Phe Val Pro Thr Ser Thr Val Pro Glu Gln  
50 55 60

Leu Gln Gly Gln Met Ser Ile Leu Gln Tyr Phe Ala Thr Tyr Met Glu  
65 70 75 80

Lys Asn Leu Met Lys Gly Gly Asp Leu Pro Cys His Glu Glu Gly Ser  
85 90 95

Gln Ala Pro Leu Leu Leu Leu Gln Trp Val Lys Thr Glu His Ala Leu  
100 105 110

Leu Met Leu Phe Ser Asn Gly Thr Leu Gln Val Asn Phe Tyr Asn Asp  
115 120 125

His Thr Lys Ile Ile Leu Cys Lys Pro Gln Asp Ala Tyr Leu Leu Thr  
130 135 140

Tyr Ile Asn Arg Asp Arg Asn Ser Gln Thr Phe Leu Leu Ser Thr Leu  
145 150 155 160

Ala Gln Thr Gly Cys Asn Ser Glu Met Tyr His Arg Leu Lys Tyr Thr  
165 170 175

Val Lys Leu Leu Gln Gln Lys Ala Glu Ser  
180 185

<210> 98  
<211> 194  
<212> PRT  
<213> S. pombe

<400> 98

Pro Val Leu Phe Ile Thr Lys Trp Val Asp Tyr Ser Asn Lys Tyr Gly  
1 5 10 15

Leu Gly Tyr Gln Leu Ser Asp Glu Ser Val Gly Val His Phe Asn Asp  
20 25 30

Asp Thr Ser Leu Leu Phe Ser Ala Asp Glu Glu Val Val Glu Tyr Ala  
35 40 45

Leu His Pro Lys Asp Thr Glu Ile Lys Pro Tyr Ile Tyr Pro Ala Ser  
50 55 60

Lys Val Pro Glu Ser Ile Arg Ser Lys Leu Gln Leu Leu Lys His Phe  
65 70 75 80

Lys Ser Tyr Met Gly Gln Asn Leu Ser Lys Ala Val Gln Asp Glu Ser  
85 90 95

Phe Glu Lys Pro Lys Asn Ser Thr Ser Asn Thr Met Leu Phe Met Gln  
100 105 110

His Tyr Leu Arg Thr Arg Gln Ala Ile Met Phe Arg Leu Ser Asn Gly  
115 120 125

Ile Phe Gln Phe Asn Glu Leu Asp His Arg Lys Val Val Ile Ser Ser  
130 135 140

Thr Ala Arg Lys Ile Ile Val Leu Asp Lys Glu Arg Glu Arg Val Glu  
145 150 155 160

Leu Pro Leu Gln Glu Ala Ser Ala Phe Ser Glu Asp Leu Arg Ser Arg  
165 170 175

Leu Lys Tyr Ile Arg Glu Thr Leu Glu Ser Trp Ala Ser Lys Met Glu  
180 185 190

Val Ser

<210> 99  
<211> 196  
<212> PRT  
<213> *Sacromyces cerevisiae*

<400> 99

His Pro Met Ile Val Thr Lys Trp Val Asp Tyr Ser Asn Lys His Gly  
1 5 10 15

Phe Ser Tyr Gln Leu Ser Thr Glu Asp Ile Gly Val Leu Phe Asn Asn  
20 25 30

Gly Thr Thr Val Leu Arg Leu Ala Asp Ala Glu Glu Phe Trp Tyr Ile  
35 40 45

Ser Tyr Asp Asp Arg Glu Gly Trp Val Ala Ser His Tyr Leu Leu Ser  
50 55 60

Glu Lys Pro Arg Glu Leu Ser Arg His Leu Glu Val Val Asp Phe Phe  
65 70 75 80



Ala Lys Tyr Met Lys Ala Asn Leu Ser Arg Val Ser Thr Phe Gly Arg  
85 90 95

Glu Glu Tyr His Lys Asp Asp Val Phe Leu Arg Arg Tyr Thr Arg Tyr  
100 105 110

Lys Pro Phe Val Met Phe Glu Leu Ser Asp Gly Thr Phe Gln Phe Asn  
115 120 125

Phe Lys Asp His His Lys Met Ala Ile Ser Asp Gly Gly Lys Leu Val  
130 135 140

Thr Tyr Ile Ser Pro Ser His Glu Ser Thr Thr Tyr Pro Leu Val Glu  
145 150 155 160

Val Leu Lys Tyr Gly Glu Ile Pro Gly Tyr Pro Glu Ser Asn Phe Arg  
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